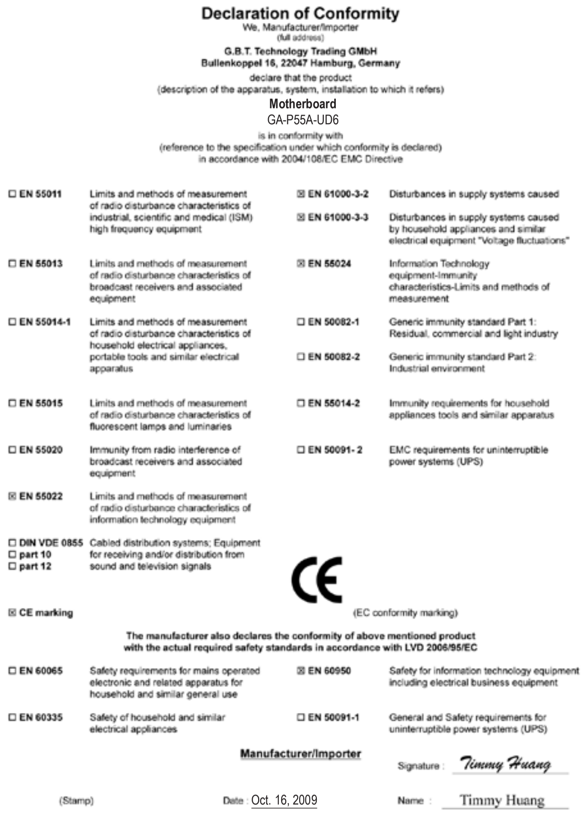
GA-P55A-UD6

LGA1156 socket motherboard for Intel® Core™ i7 processor family/
Intel® Core™ i5 processor family

User's Manual

Rev. 1001
12ME-P55AUD6-1001R



Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Trading GMbH
Bullenkoppel 16, 22047 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Motherboard
GA-P55A-UD6

is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 2004/108/EC EMC Directive

☐ **EN 55011**	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment	☒ **EN 61000-3-2**	Disturbances in supply systems caused
		☒ **EN 61000-3-3**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ **EN 55013**	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☒ **EN 55024**	Information Technology equipment-Immunity characteristics-Limits and methods of measurement
☐ **EN 55014-1**	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☐ **EN 50082-1**	Generic immunity standard Part 1: Residual, commercial and light industry
		☐ **EN 50082-2**	Generic immunity standard Part 2: Industrial environment
☐ **EN 55015**	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ **EN 55014-2**	Immunity requirements for household appliances tools and similar apparatus
☐ **EN 55020**	Immunity from radio interference of broadcast receivers and associated equipment	☐ **EN 50091- 2**	EMC requirements for uninterruptible power systems (UPS)
☒ **EN 55022**	Limits and methods of measurement of radio disturbance characteristics of information technology equipment		
☐ **DIN VDE 0855** ☐ **part 10** ☐ **part 12**	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals		
☒ **CE marking**			(EC conformity marking)

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 2006/95/EC

☐ **EN 60065**	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☒ **EN 60950**	Safety for information technology equipment including electrical business equipment
☐ **EN 60335**	Safety of household and similar electrical appliances	☐ **EN 50091-1**	General and Safety requirements for uninterruptible power systems (UPS)

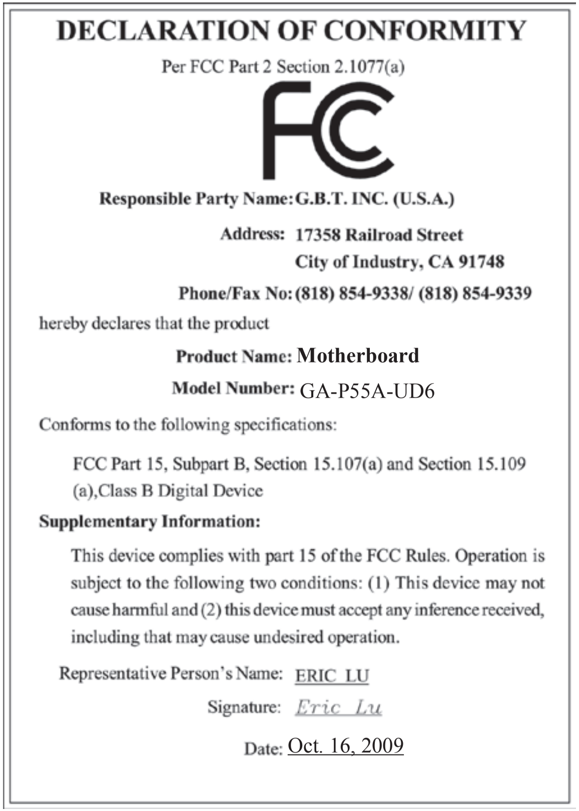
Manufacturer/Importer

Signature : Timmy Huang

(Stamp)

Date : Oct. 16, 2009

Name : Timmy Huang



DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: **G.B.T. INC. (U.S.A.)**

Address: **17358 Railroad Street**
City of Industry, CA 91748

Phone/Fax No: **(818) 854-9338/ (818) 854-9339**

hereby declares that the product

Product Name: **Motherboard**

Model Number: GA-P55A-UD6

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109 (a),Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Oct. 16, 2009

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentations:

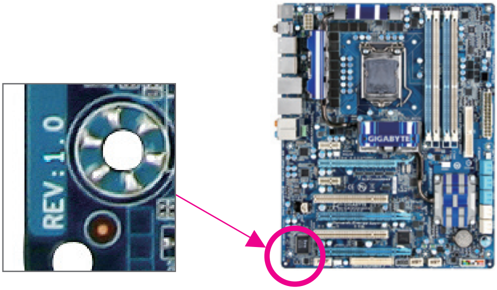
- For quick set-up of the product, read the Quick Installation Guide included with the product.
- For detailed product information, carefully read the User's Manual.
- For instructions on how to use GIGABYTE's unique features, read or download the information on/from the Support&Downloads\Motherboard\Technology Guide page on our website.

For product-related information, check on our website at:
http://www.gigabyte.com.tw

Identifying Your Motherboard Revision

The revision number on your motherboard looks like this: "REV: X.X." For example, "REV: 1.0" means the revision of the motherboard is 1.0. Check your motherboard revision before updating motherboard BIOS, drivers, or when looking for technical information.

Example:



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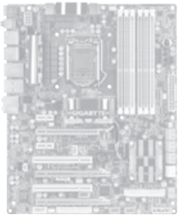
Box Contents



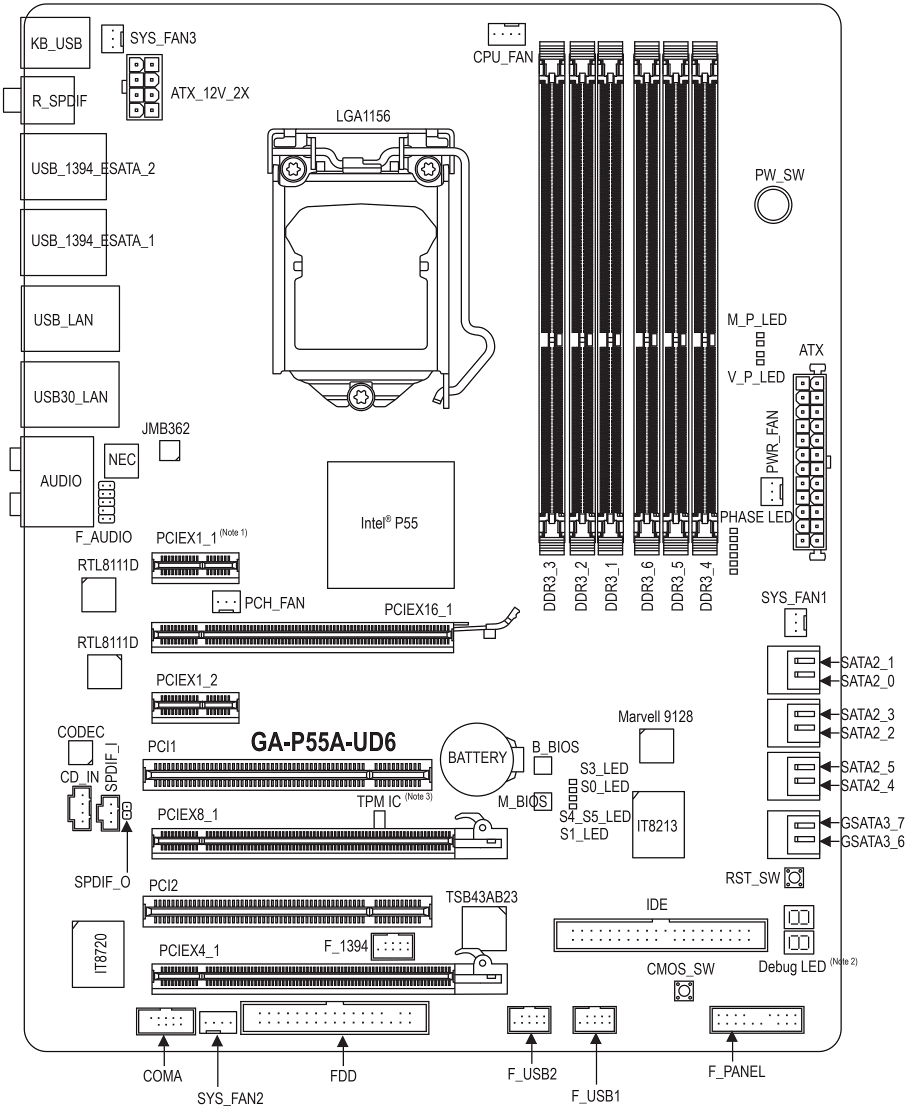
- ☑ GA-P55A-UD6 motherboard
- ☑ Motherboard driver disk
- ☑ User's Manual
- ☑ Quick Installation Guide
- ☑ One IDE cable
- ☑ Four SATA 3Gb/s cables
- ☑ I/O Shield
- ☑ One SATA bracket
- ☑ 2-Way SLI bridge connector

- The box contents above are for reference only and the actual items shall depend on the product package you obtain. The box contents are subject to change without notice.
- The motherboard image is for reference only.

Optional Items

- ☐ Floppy disk drive cable (Part No. 12CF1-1FD001-7*R)
- ☐ 2-port USB 2.0 bracket (Part No. 12CR1-1UB030-5*R)
- ☐ 2-port IEEE 1394a bracket (Part No. 12CF1-1IE008-0*R)
- ☐ 2-port SATA power cable (Part No. 12CF1-2SERPW-0*R)
- ☐ S/PDIF In cable (Part No. 12CR1-1SPDIN-0*R)
- ☐ COM port cable (Part No. 12CF1-1CM001-3*R)

GA-P55A-UD6 Motherboard Layout

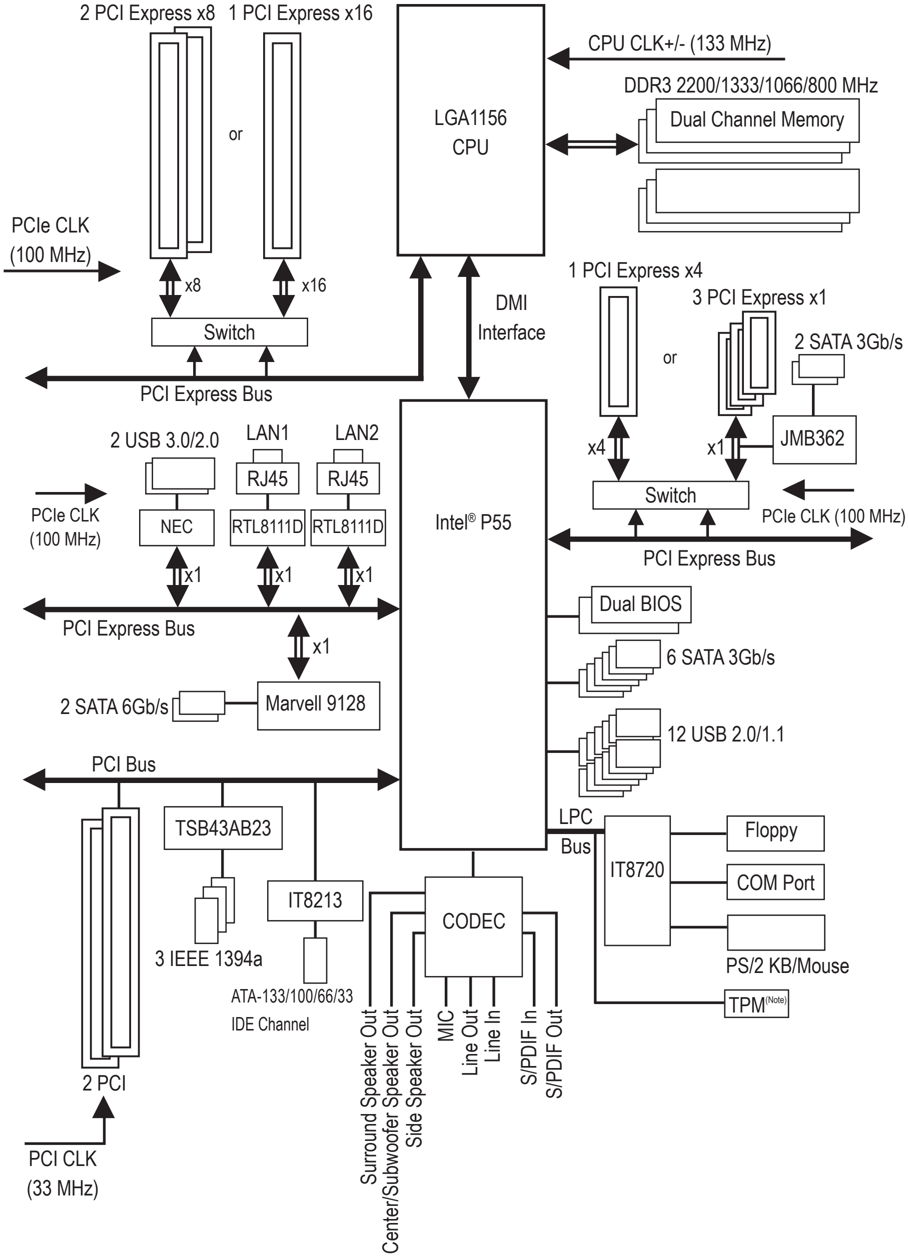

KB_USB
SYS_FAN3
CPU_FAN
R_SPDIF
ATX_12V_2X
LGA1156
USB_1394_ESATA_2
PW_SW
USB_1394_ESATA_1
USB_LAN
M_P_LED
ATX
V_P_LED
USB30_LAN
JMB362
PWR_FAN
NEC
AUDIO
Intel® P55
PHASE LED
F_AUDIO
PCIEX1_1 (Note 1)
RTL8111D
DDR3_3
DDR3_2
DDR3_1
DDR3_6
DDR3_5
DDR3_4
PCH_FAN
PCIEX16_1
SYS_FAN1
RTL8111D
SATA2_1
SATA2_0
PCIEX1_2
Marvell 9128
SATA2_3
SATA2_2
CODEC
PCI1
GA-P55A-UD6
BATTERY
B_BIOS
SATA2_5
SATA2_4
CD_IN
SPDIF_I
S3_LED
S0_LED
TPM IC (Note 3)
M_BIOS
PCIEX8_1
S4_S5_LED
S1_LED
IT8213
GSATA3_7
GSATA3_6
SPDIF_O
PCI2
RST_SW
TSB43AB23
IDE
IT8720
F_1394
PCIEX4_1
CMOS_SW
Debug LED (Note 2)
COMA
SYS_FAN2
FDD
F_USB2
F_USB1
F_PANEL

(Note 1) Due to a hardware limitation, the PCIEX1_1 slot can only accommodate a shorter PCI Express x1 expansion card. For a longer expansion card, use other expansion slots.

(Note 2) For error code information, please refer to Chapter 5.

(Note 3) This feature is optional due to different regional policy.

Block Diagram


2 PCI Express x8
1 PCI Express x16
or
LGA1156
CPU
CPU CLK+/- (133 MHz)
DDR3 2200/1333/1066/800 MHz
Dual Channel Memory
PCIe CLK
(100 MHz)
x8
x16
Switch
DMI
Interface
PCI Express Bus
1 PCI Express x4
3 PCI Express x1
or
2 SATA 3Gb/s
JMB362
x4
x1
Switch
PCIe CLK (100 MHz)
PCI Express Bus
2 USB 3.0/2.0
LAN1
LAN2
RJ45
RJ45
PCIe CLK
(100 MHz)
NEC
RTL8111D
RTL8111D
Intel® P55
x1
x1
x1
PCI Express Bus
x1
Dual BIOS
6 SATA 3Gb/s
2 SATA 6Gb/s
Marvell 9128
12 USB 2.0/1.1
PCI Bus
TSB43AB23
LPC
Bus
IT8720
Floppy
COM Port
PS/2 KB/Mouse
TPM(Note)
IT8213
CODEC
3 IEEE 1394a
ATA-133/100/66/33
IDE Channel
Surround Speaker Out
Center/Subwoofer Speaker Out
Side Speaker Out
MIC
Line Out
Line In
S/PDIF In
S/PDIF Out
2 PCI
PCI CLK
(33 MHz)

(Note) This feature is optional due to different regional policy.

Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user's manual and follow these procedures:

- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

1-2 Product Specifications

CPU	◆ Support for an Intel® Core™ i7 series processor/Intel® Core™ i5 series processor in the LGA1156 package (Go to GIGABYTE's website for the latest CPU support list.) ◆ L3 cache varies with CPU
Chipset	◆ Intel® P55 Express Chipset
Memory	◆ 6 x 1.5V DDR3 DIMM sockets supporting up to 16 GB of system memory (Note 1) ◆ Dual channel memory architecture ◆ Support for DDR3 2200/1333/1066/800 MHz memory modules ◆ Support for non-ECC memory modules ◆ Support for Extreme Memory Profile (XMP) memory modules (Go to GIGABYTE's website for the latest memory support list.)
Audio	◆ Realtek ALC889 codec ◆ High Definition Audio ◆ 2/4/5.1/7.1-channel ◆ Support for Dolby® Home Theater ◆ Support for S/PDIF In/Out ◆ Support for CD In
LAN	◆ 2 x RTL8111D chips (10/100/1000 Mbit) ◆ Support for Teaming ◆ Support for Smart Dual LAN
Expansion Slots	◆ 1 x PCI Express x16 slot, running at x16 (PCIEX16_1) (Note 2) ◆ 1 x PCI Express x16 slot, running at x8 (PCIEX8_1) (Note 3) (The PCIEX16_1 and PCIEX8_1 slots conform to PCI Express 2.0 standard.) ◆ 1 x PCI Express x16 slot, running at x4 (PCIEX4_1) (Note 4) ◆ 2 x PCI Express x1 slots ◆ 2 x PCI slots
Multi-Graphics Technology	◆ Support for ATI CrossFireX™/NVIDIA SLI technology (The PCIEX16_1 and PCIEX8_1 slots only.)
Storage Interface	◆ Chipset: - 6 x SATA 3Gb/s connectors (SATA2_0, SATA2_1, SATA2_2, SATA2_3, SATA2_4, SATA2_5) supporting up to 6 SATA 3Gb/s devices - Support for SATA RAID 0, RAID 1, RAID 5 and RAID 10 ◆ Marvell 9128 chip: - 2 x SATA 6Gb/s connectors (GSATA3_6, GSATA3_7) supporting up to 2 SATA 6Gb/s devices - Support for SATA RAID 0 ◆ JMB362 chip: - 2 x eSATA 3Gb/s connectors (eSATA/USB Combo) on the back panel supporting up to 2 SATA 3Gb/s devices - Support for SATA RAID 0, RAID 1 and JBOD ◆ iTE IT8213 chip: - 1 x IDE connector supporting ATA-133/100/66/33 and up to 2 IDE devices ◆ iTE IT8720 chip: - 1 x floppy disk drive connector supporting up to 1 floppy disk drive

USB	◆ Chipset - Up to 12 USB 2.0/1.1 ports (8 on the back panel, including 2 eSATA/USB Combo, 4 via the USB brackets connected to the internal USB headers) ◆ NEC chip - Up to 2 USB 3.0/2.0 ports on the back panel
IEEE 1394	◆ T.I. TSB43AB23 chip - Up to 3 IEEE 1394a ports (2 on the back panel, 1 via the IEEE 1394a bracket connected to the internal IEEE 1394a header)
Internal Connectors	◆ 1 x 24-pin ATX main power connector ◆ 1 x 8-pin ATX 12V power connector ◆ 1 x floppy disk drive connector ◆ 1 x IDE connector ◆ 6 x SATA 3Gb/s connectors ◆ 2 x SATA 6Gb/s connectors ◆ 1 x CPU fan header ◆ 3 x system fan headers ◆ 1 x power fan header ◆ 1 x Chipset fan header ◆ 1 x front panel header ◆ 1 x front panel audio header ◆ 1 x CD In connector ◆ 1 x S/PDIF In header ◆ 1 x S/PDIF Out header ◆ 2 x USB 2.0/1.1 headers ◆ 1 x IEEE 1394a header ◆ 1 x serial port header ◆ 1 x clearing CMOS button ◆ 1 x power button ◆ 1 x reset button
Back Panel Connectors	◆ 1 x PS/2 keyboard/mouse port ◆ 1 x coaxial S/PDIF Out connector ◆ 1 x optical S/PDIF Out connector ◆ 2 x IEEE 1394a ports ◆ 6 x USB 2.0/1.1 ports ◆ 2 x USB 3.0/2.0 ports ◆ 2 x eSATA/USB Combo connectors ◆ 2 x RJ-45 ports ◆ 6 x audio jacks (Center/Subwoofer Speaker Out/Rear Speaker Out/ Side Speaker Out/Line In/Line Out/Microphone)
I/O Controller	◆ iTE IT8720 chip

Hardware Monitor	◆ System voltage detection ◆ CPU/System temperature detection ◆ CPU/System/Power fan speed detection ◆ CPU overheating warning ◆ CPU/System/Power fan fail warning ◆ CPU/System fan speed control (Note 5)
BIOS	◆ 2 x 16 Mbit flash ◆ Use of licensed AWARD BIOS ◆ Support for DualBIOS™ ◆ PnP 1.0a, DMI 2.0, SM BIOS 2.4, ACPI 1.0b
Unique Features	◆ Support for @BIOS ◆ Support for Q-Flash ◆ Support for Xpress BIOS Rescue ◆ Support for Download Center ◆ Support for Xpress Install ◆ Support for Xpress Recovery2 ◆ Support for EasyTune (Note 6) ◆ Support for Dynamic Energy Saver™ 2 ◆ Support Smart TPM (Note 7) ◆ Support for Smart 6™ ◆ Support for Auto Green ◆ Support for eXtreme Hard Drive ◆ Support for Q-Share
Bundled Software	◆ Norton Internet Security (OEM version)
Operating System	◆ Support for Microsoft® Windows 7/Vista/XP
Form Factor	◆ ATX Form Factor; 30.5cm x 24.4cm

(Note 1) Due to Windows Vista/XP 32-bit operating system limitation, when more than 4 GB of physical memory is installed, the actual memory size displayed will be less than 4 GB.

(Note 2) For optimum performance, if only one PCI Express graphics card is to be installed, be sure to install it in the PCIEX16_1 slot.

(Note 3) The PCIEX8_1 slot shares bandwidth with the PCIEX16_1 slot. When the PCIEX8_1 slot is populated with a PCI Express graphics card, the PCIEX16_1 slot will operate at up to x8 mode.

(Note 4) The default bandwidth for the PCIEX4_1 slot is x1. When it is configured to x4 mode, the PCIEX1_1 and PCIEX1_2 slots and the eSATA connectors will become unavailable because they share bandwidth with the PCIEX4_1 slot. (Refer to Chapter 2, "Integrated Peripherals" for how to change the operating bandwidth for the PCIEX4_1 slot.)

(Note 5) Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.

(Note 6) Available functions in EasyTune may differ by motherboard model.

(Note 7) This feature is optional due to different regional policy.

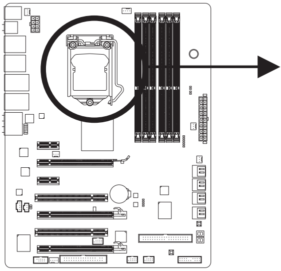
1-3 Installing the CPU and CPU Cooler

Read the following guidelines before you begin to install the CPU:

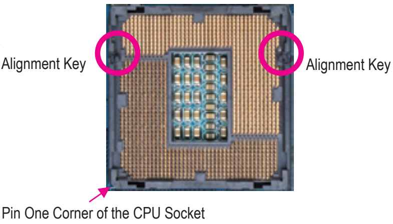
- Make sure that the motherboard supports the CPU.
  (Go to GIGABYTE's website for the latest CPU support list.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

1-3-1 Installing the CPU

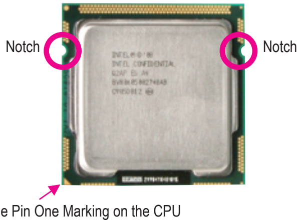
A. Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.



LGA1156 CPU Socket

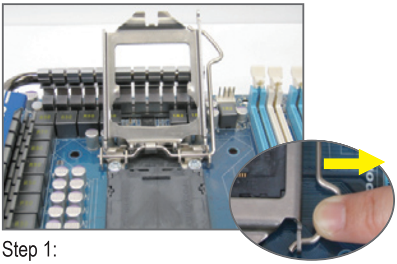


LGA1156 CPU

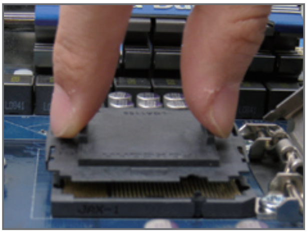


B. Follow the steps below to correctly install the CPU into the motherboard CPU socket.

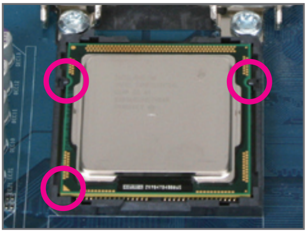
Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the CPU.



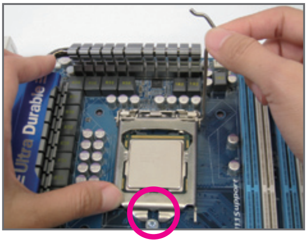
Step 1:
Gently press the CPU socket lever handle down and away from the socket with your finger. Then completely lift the CPU socket lever and the metal load plate will be lifted as well.



Step 2:
Use your thumb and index finger to grasp the protective socket cover as indicated and lift it up vertically. (DO NOT touch socket contacts. To protect the CPU socket, always replace the protective socket cover when the CPU is not installed.)

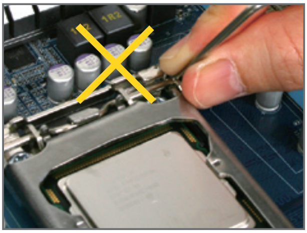


Step 3:
Hold the CPU with your thumb and index fingers. Align the CPU pin one marking (triangle) with the pin one corner of the CPU socket (or you may align the CPU notches with the socket alignment keys) and gently insert the CPU into position.



Step 4:
Once the CPU is properly inserted, use one hand to hold the socket lever and use the other to lightly replace the load plate. When replacing the load plate, make sure the front end of the load plate is under the shoulder screw.

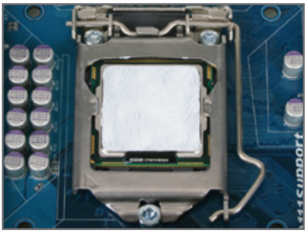
Step 5:
Push the CPU socket lever back into its locked position.



NOTE:
Hold the CPU socket lever by the handle, not the lever base portion.

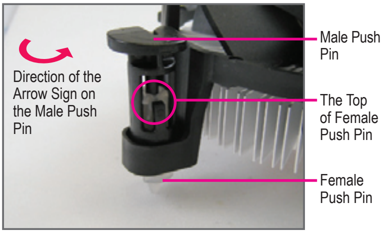
1-3-2 Installing the CPU Cooler

Follow the steps below to correctly install the CPU cooler on the motherboard. (The following procedure uses Intel® boxed cooler as the example cooler.)



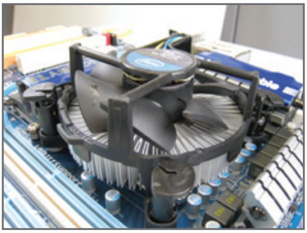
Step 1:

Apply an even and thin layer of thermal grease on the surface of the installed CPU.


Direction of the Arrow Sign on the Male Push Pin
Male Push Pin
The Top of Female Push Pin
Female Push Pin

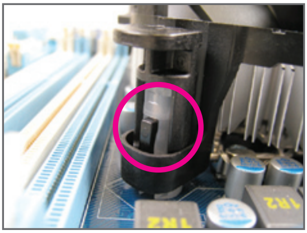
Step 2:

Before installing the cooler, note the direction of the arrow sign ↪ on the male push pin. (Turning the push pin along the direction of arrow is to remove the cooler, on the contrary, is to install.)



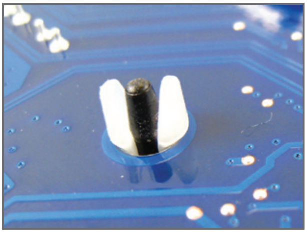
Step 3:

Place the cooler atop the CPU, aligning the four push pins through the pin holes on the motherboard. Push down on the push pins diagonally.



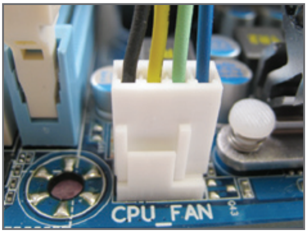
Step 4:

You should hear a "click" when pushing down each push pin. Check that the Male and Female push pins are joined closely. (Refer to your CPU cooler installation manual for instructions on installing the cooler.)



Step 5:

After the installation, check the back of the motherboard. If the push pin is inserted as the picture above shows, the installation is complete.



Step 6:

Finally, attach the power connector of the CPU cooler to the CPU fan header (CPU_FAN) on the motherboard.

Use extreme care when removing the CPU cooler because the thermal grease/tape between the CPU cooler and CPU may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

1-4 Installing the Memory

Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
  (Go to GIGABYTE's website for the latest memory support list.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

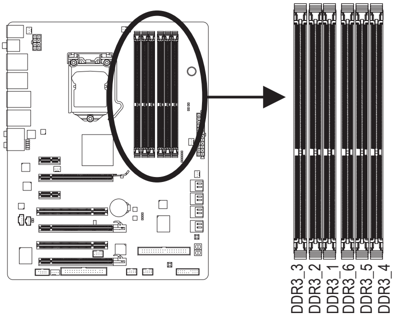
1-4-1 Dual Channel Memory Configuration

This motherboard provides six DDR3 memory sockets and supports Dual Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Dual Channel memory mode will double the original memory bandwidth.

The six DDR3 memory sockets are divided into two channels and each channel has two memory sockets as following:

▸▸Channel 0: DDR3_1, DDR3_2, DDR3_3

▸▸Channel 1: DDR3_4, DDR3_5, DDR3_6



▸▸Dual Channel Memory Configurations Table

	DDR3_3	DDR3_2	DDR3_1	DDR3_6	DDR3_5	DDR3_4
Two Module	- -	- -	DS/SS	- -	- -	DS/SS
Four Modules	- -	DS/SS	DS/SS	- -	DS/SS	DS/SS
	DS	- -	DS/SS	DS	- -	DS/SS
Six Modules	SS	SS	DS/SS	SS	SS	DS/SS

(SS=Single-Sided, DS=Double-Sided, "- -"=No Memory)

Due to CPU limitations, read the following guidelines before installing the memory in Dual Channel mode.

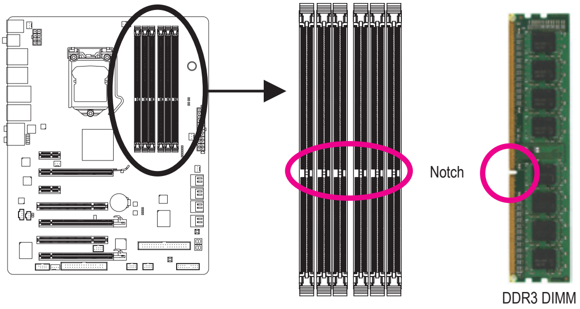
1. Dual Channel mode cannot be enabled if only one DDR3 memory module is installed.
2. When enabling Dual Channel mode, it is recommended that memory of the same capacity, brand, speed for optimum performance. When enabling Dual Channel mode with two memory modules, be sure to install them in the DDR3_1 and DDR3_4 sockets. When enabling Dual Channel mode with six memory modules, make sure that memory modules to be installed on the DDR3_3, DDR3_2, DDR3_6, DDR3_5 sockets are all single-sided.

If only one DDR3 memory module is installed, be sure to install it in the DDR3_1 or DDR3_4.

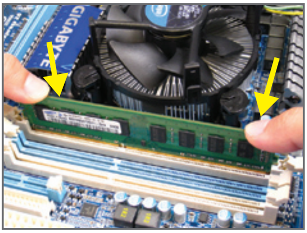
1-4-2 Installing a Memory

Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.

DDR3 and DDR2 DIMMs are not compatible to each other or DDR DIMMs. Be sure to install DDR3 DIMMs on this motherboard.

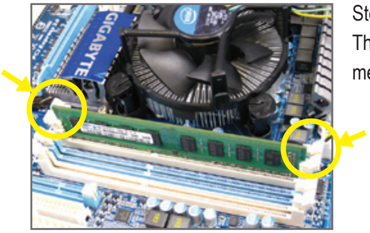


A DDR3 memory module has a notch, so it can only fit in one direction. Follow the steps below to correctly install your memory modules in the memory sockets.



Step 1:

Note the orientation of the memory module. Spread the retaining clips at both ends of the memory socket. Place the memory module on the socket. As indicated in the picture on the left, place your fingers on the top edge of the memory, push down on the memory and insert it vertically into the memory socket.



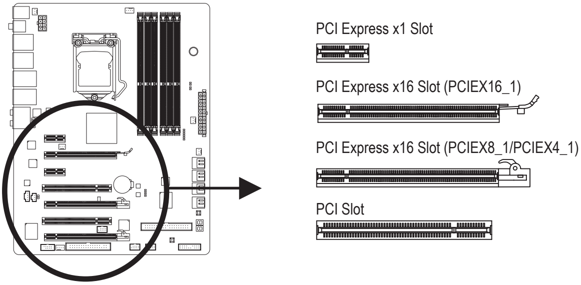
Step 2:

The clips at both ends of the socket will snap into place when the memory module is securely inserted.

1-5 Installing an Expansion Card

Read the following guidelines before you begin to install an expansion card:

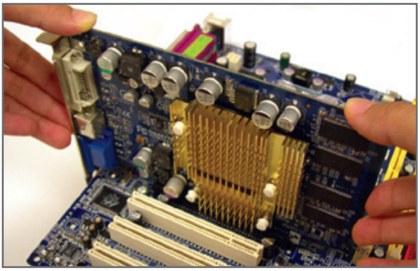
- Make sure the motherboard supports the expansion card. Carefully read the manual that came with your expansion card.
- Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.


PCI Express x1 Slot
PCI Express x16 Slot (PCIEX16_1)
PCI Express x16 Slot (PCIEX8_1/PCIEX4_1)
PCI Slot

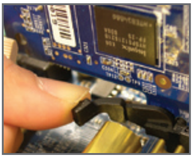
Follow the steps below to correctly install your expansion card in the expansion slot.

1. Locate an expansion slot that supports your card. Remove the metal slot cover from the chassis back panel.
2. Align the card with the slot, and press down on the card until it is fully seated in the slot.
3. Make sure the metal contacts on the card are completely inserted into the slot.
4. Secure the card's metal bracket to the chassis back panel with a screw.
5. After installing all expansion cards, replace the chassis cover(s).
6. Turn on your computer. If necessary, go to BIOS Setup to make any required BIOS changes for your expansion card(s).
7. Install the driver provided with the expansion card in your operating system.

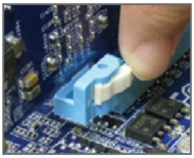
Example: Installing and Removing a PCI Express Graphics Card:



- Installing a Graphics Card:
  Gently push down on the top edge of the card until it is fully inserted into the PCI Express slot. Make sure the card is securely seated in the slot and does not rock.



- Removing the Card from the PCIEX16_1 Slot:
  Gently push back on the lever on the slot and then lift the card straight out from the slot.



- Removing the Card from the PCIEX8_1/PCIEX4_1 Slot:
  Press the white latch at the end of the PCI Express slot to release the card and then pull the card straight up from the slot.

1-6 Setup of ATI CrossFireX™/NVIDIA SLI Configuration

A. System Requirements

- Windows Vista or Windows XP operating system
- A CrossFireX/SLI-supported motherboard with two PCI Express x16 slots and correct driver
- Two CrossFireX/SLI-ready graphics cards of identical brand and chip and correct driver
- Two CrossFire (Note)/SLI bridge connectors
- A power supply with sufficient power is recommended (Refer to the manual of your graphics cards for the power requirement)

B. Connecting the Graphics Cards

Step 1:

Observe the steps in "1-5 Installing an Expansion Card" and install two CrossFireX/SLI graphics cards on the PCI Express x16 slots. For optimum graphics performance, be sure to install the cards on the PCIEX16_1 and PCIEX8_1 slots.

Step 2:

Insert the CrossFire (Note)/SLI bridge connectors in the CrossFireX/SLI gold edge connectors on top of the two cards.

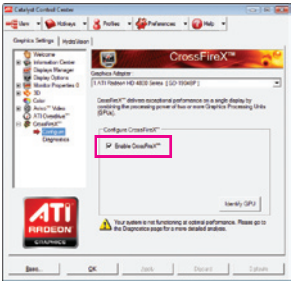
Step 3:

Plug the display cable into the graphics card on the PCIEX16_1 slot.

C. Configuring the Graphics Card Driver

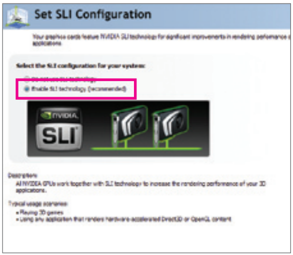
C-1. To Enable CrossFireX Function

After installing the graphics card driver in the operating system, go to the **ATI Catalyst Control Center**. Browse to the **CrossFireX** menu and ensure the **Enable CrossFireX**™ check box is selected.


Catalyst Control Center
CrossFireX™
Configure CrossFireX™
☑ Enable CrossFireX™
Identify GPU
OK

C-2. To Enable SLI Function

After installing the graphics card driver in the operating system, go to the **NVIDIA Control Panel**. Browse to the **Set SLI Configuration** screen and ensure the **Enable SLI technology** check box is selected.


Set SLI Configuration
Select the SLI configuration for your system:
● Enable SLI technology (recommended)
NVIDIA
SLI

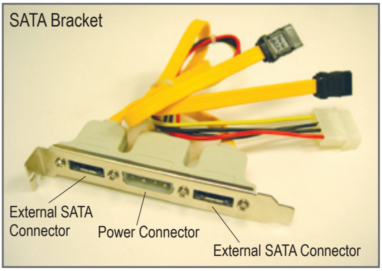
(Note) The bridge connectors may be needed or not depending on your graphics cards.

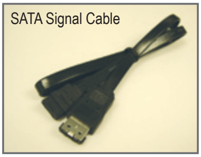
Procedure and driver screen for enabling CrossFireX/SLI technology may differ by graphics cards. Refer to the manual that came with your graphics cards for more information about enabling CrossFireX /SLI technology.

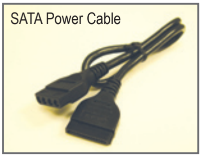
1-7 Installing the SATA Bracket

The SATA bracket allows you to connect external SATA device(s) to your system by expanding the internal SATA port(s) to the chassis back panel.

- Turn off your system and the power switch on the power supply before installing or removing the SATA bracket and SATA power cable to prevent damage to hardware.
- Insert the SATA signal cable and SATA power cable securely into the corresponding connectors when installing.

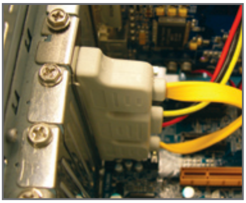




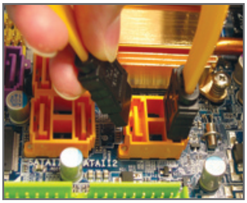


The SATA bracket includes one SATA bracket, one SATA signal cable, and one SATA power cable.

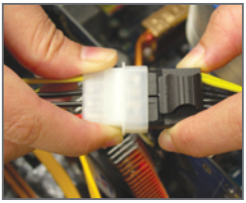
Follow the steps below to install the SATA bracket:



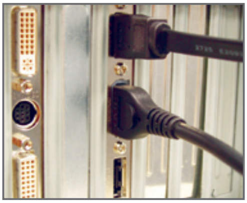
Step 1:
Locate one free PCI slot and secure the SATA bracket to the chassis back panel with a screw.



Step 2:
Connect the SATA cable from the bracket to the SATA port on your motherboard.



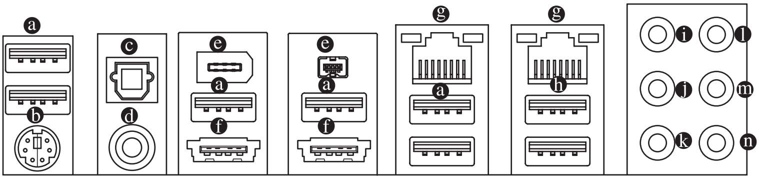
Step 3:
Connect the power cable from the bracket to the power supply.



Step 4:
Plug one end of the SATA signal cable into the external SATA connector on the bracket. Then attach the SATA power cable to the power connector on the bracket.

Step 5:
Connect the other ends of the SATA signal cable and SATA power cable to your SATA device. For SATA device in external enclosure, you only need to connect the SATA signal cable. Before connecting the SATA signal cable, make sure to turn off the power of the external enclosure.

1-8 Back Panel Connectors



ⓐ USB 2.0/1.1 Port

The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓑ PS/2 Keyboard/Mouse Port

Use this port to connect a PS/2 mouse or keyboard.

ⓒ Optical S/PDIF Out Connector

This connector provides digital audio out to an external audio system that supports digital optical audio. Before using this feature, ensure that your audio system provides an optical digital audio in connector.

ⓓ Coaxial S/PDIF Out Connector

This connector provides digital audio out to an external audio system that supports digital coaxial audio. Before using this feature, ensure that your audio system provides a coaxial digital audio in connector.

ⓔ IEEE 1394a Port

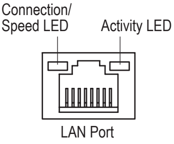
The IEEE 1394 port supports the IEEE 1394a specification, featuring high speed, high bandwidth and hotplug capabilities. Use this port for an IEEE 1394a device.

ⓕ eSATA/USB Combo Connector

This connector supports SATA 3Gb/s and USB 2.0/1.1 specification. Use the port to connect an external SATA device; or use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓖ RJ-45 LAN Port

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.



Connection/Speed LED:

State	Description
Orange	1 Gbps data rate
Green	100 Mbps data rate
Off	10 Mbps data rate

Activity LED:

State	Description
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring

- When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
- When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.

ⓗ USB 3.0/2.0 Port

The USB 3.0 port supports the USB 3.0 specification and is compatible to the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

ⓘ Center/Subwoofer Speaker Out Jack (Orange)

Use this audio jack to connect center/subwoofer speakers in a 5.1/7.1-channel audio configuration.

ⓙ Rear Speaker Out Jack (Black)

Use this audio jack to connect rear speakers in a 7.1-channel audio configuration.

ⓚ Side Speaker Out Jack (Gray)

Use this audio jack to connect side speakers in a 4/5.1/7.1-channel audio configuration.

ⓛ Line In Jack (Blue)

The default line in jack. Use this audio jack for line in devices such as an optical drive, walkman, etc.

ⓜ Line Out Jack (Green)

The default line out jack. Use this audio jack for a headphone or 2-channel speaker. This jack can be used to connect front speakers in a 4/5.1/7.1-channel audio configuration.

ⓝ Mic In Jack (Pink)

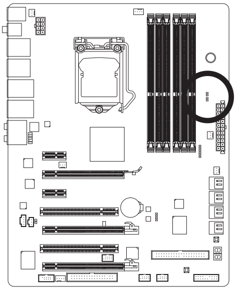
The default Mic in jack. Microphones must be connected to this jack.

In addition to the default speakers settings, the ⓘ ~ ⓝ audio jacks can be reconfigured to perform different functions via the audio software. Only microphones still MUST be connected to the default Mic in jack (ⓝ). Refer to the instructions on setting up a 2/4/5.1/7.1-channel audio configuration in Chapter 5, "Configuring 2/4/5.1/7.1-Channel Audio."

1-9 Onboard LEDs and Buttons

CPU VTT/Memory Phase Indicator LEDs

This motherboard contains 4 phase indicator LEDs controlled by the system BIOS to indicate the phase status of the CPU VTT and memory. The green LEDs light up under normal working conditions; the yellow LEDs will be illuminated when an excessive overvoltage or overloading occurs.



V_P_LED (CPU VTT):

GD1: Normal working conditions (green LED)

GD2: Excessive overvoltage or overloading (yellow LED)

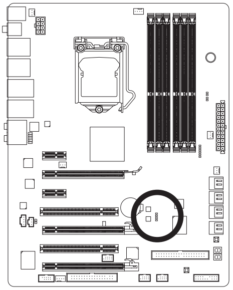
M_P_LED (Memory):

MD1: Normal working conditions (green LED)

MD2: Excessive overvoltage or overloading (yellow LED)

ACPI LEDs

The 4 embedded ACPI LEDs indicate the system power status (S0, S1, S3, S4, S5) to prevent potential hardware damage due to improper plug/unplug actions.



ACPI LEDs:

S3_LED

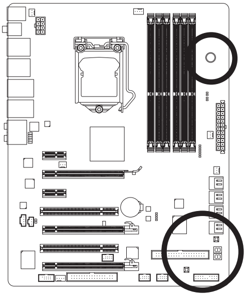
S0_LED

S4_S5_LED

S1_LED

Quick Buttons

This motherboard has 3 quick buttons: power button, reset button and clearing CMOS button. The power button and reset button allow users to quickly turn on/off or reset the computer in an open-case environment when they want to change hardware components or conduct hardware testing. Use the clearing CMOS button to clear the CMOS values (e.g. date information and BIOS configurations) and reset the CMOS values to factory defaults when needed.

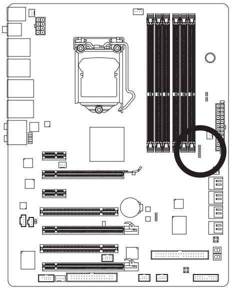


PW_SW: Power button
RST_SW: Reset button
CMOS_SW: Clearing CMOS button

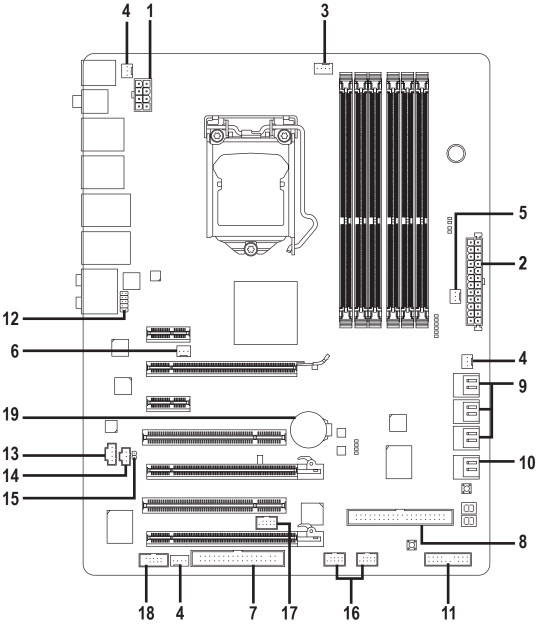
- Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
- After system restart, go to BIOS Setup to load factory defaults (select **Load Optimized Defaults**) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

PHASE LED

The Phase LEDs indicate the CPU loading. The higher the CPU loading, the more the number of lighted LEDs. To enable the PHASE LED display function, please first enable Dynamic Energy Saver™ 2. Refer to Chapter 4, "Dynamic Energy Saver™ 2," for more details.



1-10 Internal Connectors



1)	ATX_12V_2X	11)	F_PANEL
2)	ATX	12)	F_AUDIO
3)	CPU_FAN	13)	CD_IN
4)	SYS_FAN1/2/3	14)	SPDIF_I
5)	PWR_FAN	15)	SPDIF_O
6)	PCH_FAN	16)	F_USB1/F_USB2
7)	FDD	17)	F_1394
8)	IDE	18)	COMA
9)	SATA2_0/1/2/3/4/5	19)	BAT
10)	GSATA3_6/7		

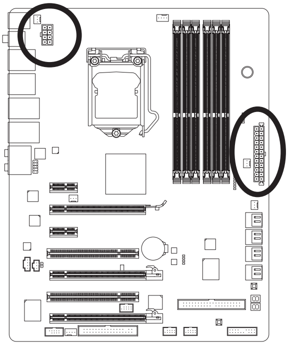
Read the following guidelines before connecting external devices:

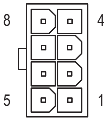
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.

1/2) ATX_12V_2X/ATX (2x4 12V Power Connector and 2x12 Main Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.

- Use of a power supply providing a 2x4 12V power connector is recommended by the CPU manufacturer when using an Intel Extreme Edition CPU (130W).
- To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.
- The power connectors are compatible with power supplies with 2x2 12V and 2x10 power connectors. When using a power supply providing a 2x4 12V and a 2x12 power connector, remove the protective covers from the 12V power connector and the main power connector on the motherboard. Do not insert the power supply cables into pins under the protective covers when using a power supply providing a 2x2 12V and a 2x10 power connector.

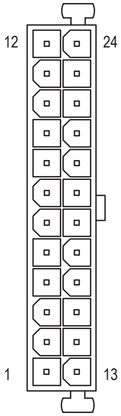




ATX_12V_2X

ATX_12V_2X:

Pin No.	Definition
1	GND (Only for 2x4-pin 12V)
2	GND (Only for 2x4-pin 12V)
3	GND
4	GND
5	+12V (Only for 2x4-pin 12V)
6	+12V (Only for 2x4-pin 12V)
7	+12V
8	+12V



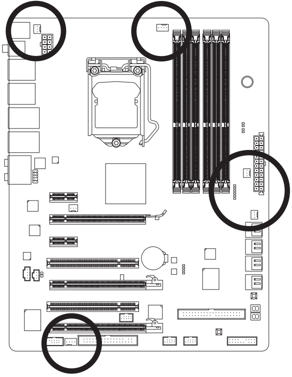
ATX

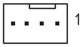
ATX:

Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON (soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V (Only for 2x12-pin ATX)	23	+5V (Only for 2x12-pin ATX)
12	3.3V (Only for 2x12-pin ATX)	24	GND (Only for 2x12-pin ATX)

3/4/5) CPU_FAN/SYS_FAN1/SYS_FAN2/SYS_FAN3/PWR_FAN (Fan Headers)

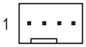
The motherboard has a 4-pin CPU fan header (CPU_FAN), a 4-pin (SYS_FAN2) and two 3-pin (SYS_FAN1/SYS_FAN3) system fan headers, and a 3-pin power fan header (PWR_FAN). Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.





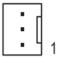
CPU_FAN:

Pin No.	Definition
1	GND
2	+12V / Speed Control
3	Sense
4	Speed Control



SYS_FAN2:

Pin No.	Definition
1	GND
2	+12V / Speed Control
3	Sense
4	Reserve

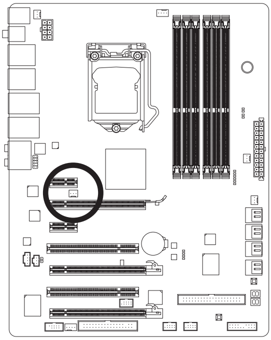


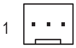
SYS_FAN1/SYS_FAN3/PWR_FAN:

Pin No.	Definition
1	GND
2	+12V
3	Sense

6) PCH_FAN (Chipset Fan Header)

Connect the Chipset fan cable to this header. The fan header has a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation. Most fans are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V voltage. The black connector wire is the ground wire.



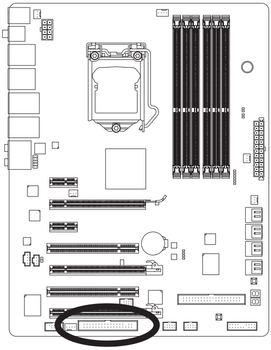


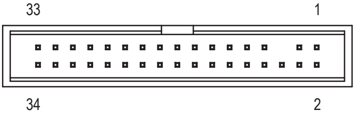
Pin No.	Definition
1	GND
2	+12V
3	NC

- Be sure to connect fan cables to the fan headers to prevent your CPU, Chipset and system from overheating. Overheating may result in damage to the CPU/Chipset or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

7) FDD (Floppy Disk Drive Connector)

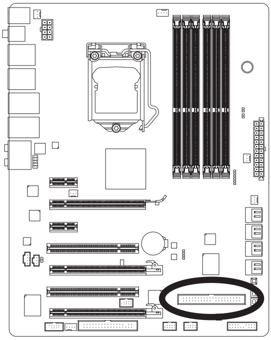
This connector is used to connect a floppy disk drive. The types of floppy disk drives supported are: 360 KB, 720 KB, 1.2 MB, 1.44 MB, and 2.88 MB. Before connecting a floppy disk drive, be sure to locate pin 1 of the connector and the floppy disk drive cable. The pin 1 of the cable is typically designated by a stripe of different color. For purchasing the optional floppy disk drive cable, please contact the local dealer.

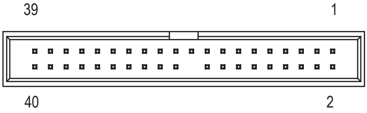




8) IDE (IDE Connector)

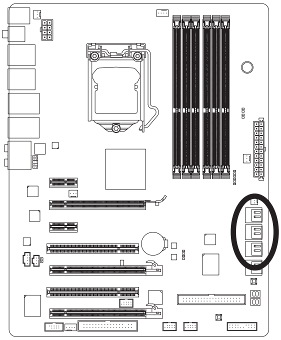
The IDE connector supports up to two IDE devices such as hard drives and optical drives. Before attaching the IDE cable, locate the foolproof groove on the connector. If you wish to connect two IDE devices, remember to set the jumpers and the cabling according to the role of the IDE devices (for example, master or slave). (For information about configuring master/slave settings for the IDE devices, read the instructions from the device manufacturers.)

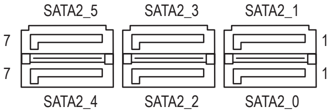




9) SATA2_0/1/2/3/4/5 (SATA 3Gb/s Connectors, Controlled by P55 Chipset)

The SATA connectors conform to SATA 3Gb/s standard and are compatible with SATA 1.5Gb/s standard. Each SATA connector supports a single SATA device. The P55 Chipset supports RAID 0, RAID 1, RAID 5 and RAID 10. Refer to Chapter 5, "Configuring SATA Hard Drive(s)," for instructions on configuring a RAID array.



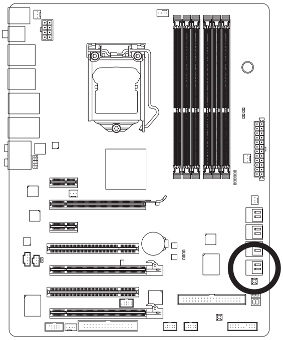


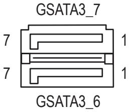
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are to be used, the total number of hard drives must be an even number.
- A RAID 5 configuration requires at least three hard drives. (The total number of hard drives does not have to be an even number.)
- A RAID 10 configuration requires at least four hard drives and the total number of hard drives must be an even number.

10) GSATA3_6/7 (SATA 6Gb/s Connectors, Controlled by Marvell 9128)

The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and SATA 1.5Gb/s standards. Each SATA connector supports a single SATA device.



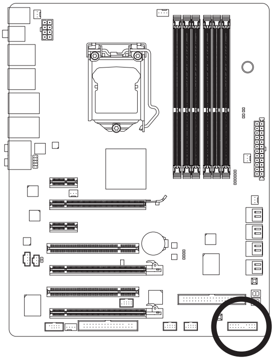


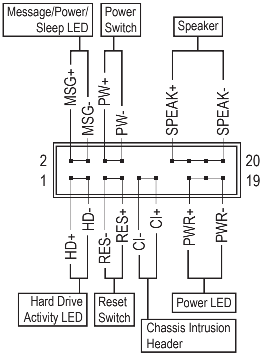
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

Please connect the L-shaped end of the SATA 3Gb/s cable to your SATA hard drive.

11) F_PANEL (Front Panel Header)

Connect the power switch, reset switch, speaker, chassis intrusion switch/sensor and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.





- **MSG/PWR** (Message/Power/Sleep LED, Yellow/Purple):

System Status	LED
S0	On
S1	Blinking
S3/S4/S5	Off

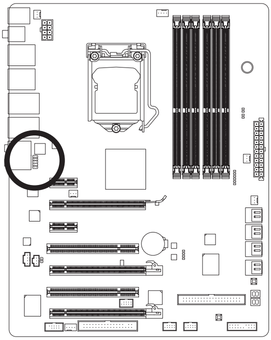
Connects to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

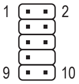
- **PW** (Power Switch, Red):
  Connects to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch (refer to Chapter 2, "BIOS Setup," "Power Management Setup," for more information).
- **SPEAK** (Speaker, Orange):
  Connects to the speaker on the chassis front panel. The system reports system startup status by issuing a beep code. One single short beep will be heard if no problem is detected at system startup. If a problem is detected, the BIOS may issue beeps in different patterns to indicate the problem. Refer to Chapter 5, "Troubleshooting," for information about beep codes.
- **HD** (Hard Drive Activity LED, Blue)
  Connects to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.
- **RES** (Reset Switch, Green):
  Connects to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.
- **CI** (Chassis Intrusion Header, Gray):
  Connects to the chassis intrusion switch/sensor on the chassis that can detect if the chassis cover has been removed. This function requires a chassis with a chassis intrusion switch/sensor.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

12) F_AUDIO (Front Panel Audio Header)

The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header. Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module connector and the motherboard header will make the device unable to work or even damage it.





For HD Front Panel Audio:

Pin No.	Definition
1	MIC2_L
2	GND
3	MIC2_R
4	-ACZ_DET
5	LINE2_R
6	GND
7	FAUDIO_JD
8	No Pin
9	LINE2_L
10	GND

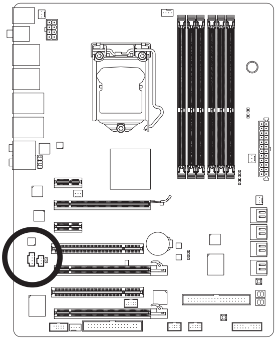
For AC'97 Front Panel Audio:

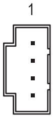
Pin No.	Definition
1	MIC
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
8	No Pin
9	Line Out (L)
10	NC

- The front panel audio header supports HD audio by default. If your chassis provides an AC'97 front panel audio module, refer to the instructions on how to activate AC'97 functionality via the audio software in Chapter 5, "Configuring 2/4/5.1/7.1-Channel Audio."
- Audio signals will be present on both of the front and back panel audio connections simultaneously. If you want to mute the back panel audio (only supported when using an HD front panel audio module), refer to Chapter 5, "Configuring 2/4/5.1/7.1-Channel Audio."
- Some chassis provide a front panel audio module that has separated connectors on each wire instead of a single plug. For information about connecting the front panel audio module that has different wire assignments, please contact the chassis manufacturer.

13) CD_IN (CD In Connector)

You may connect the audio cable that came with your optical drive to the header.

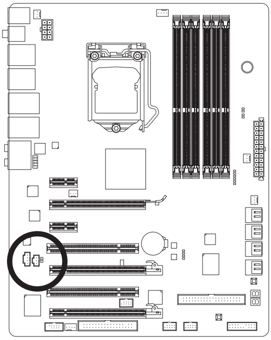


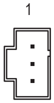


Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

14) SPDIF_I (S/PDIF In Header)

This header supports digital S/PDIF In and can connect to an audio device that supports digital audio out via an optional S/PDIF In cable. For purchasing the optional S/PDIF In cable, please contact the local dealer.

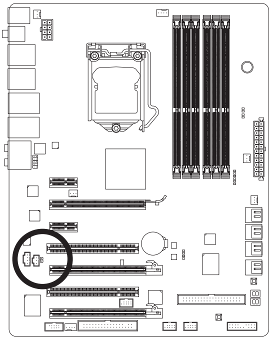


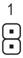


Pin No.	Definition
1	Power
2	SPDIFI
3	GND

15) SPDIF_O (S/PDIF Out Header)

This header supports digital S/PDIF Out and connects a S/PDIF digital audio cable (provided by expansion cards) for digital audio output from your motherboard to certain expansion cards like graphics cards and sound cards. For example, some graphics cards may require you to use a S/PDIF digital audio cable for digital audio output from your motherboard to your graphics card if you wish to connect an HDMI display to the graphics card and have digital audio output from the HDMI display at the same time. For information about connecting the S/PDIF digital audio cable, carefully read the manual for your expansion card.

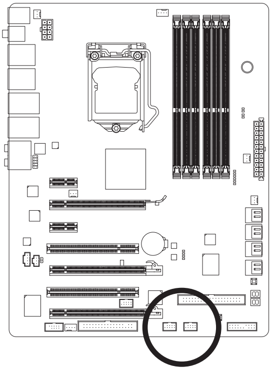


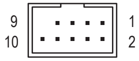


Pin No.	Definition
1	SPDIFO
2	GND

16) F_USB1/F_USB2 (USB Headers)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.



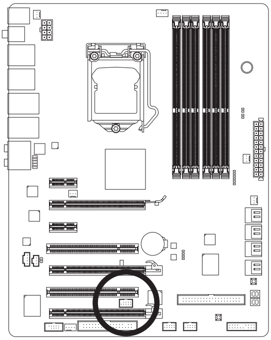


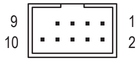
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB DY-
5	USB DX+
6	USB DY+
7	GND
8	GND
9	No Pin
10	NC

- Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB header.
- Prior to installing the USB bracket, be sure to turn off your computer and unplug the power cord from the power outlet to prevent damage to the USB bracket.

17) F_1394 (IEEE 1394a Header)

The header conforms to IEEE 1394a specification. The IEEE 1394a header can provide one IEEE 1394a port via an optional IEEE 1394a bracket. For purchasing the optional IEEE 1394a bracket, please contact the local dealer.



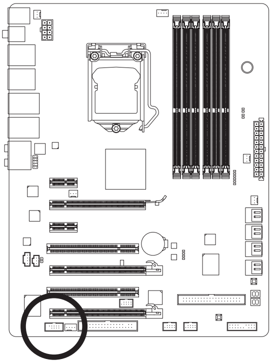


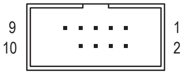
Pin No.	Definition
1	TPA+
2	TPA-
3	GND
4	GND
5	TPB+
6	TPB-
7	Power (12V)
8	Power (12V)
9	No Pin
10	GND

- Do not plug the USB bracket cable into the IEEE 1394a header.
- Prior to installing the IEEE 1394a bracket, be sure to turn off your computer and unplug the power cord from the power outlet to prevent damage to the IEEE 1394a bracket.
- To connect an IEEE 1394a device, attach one end of the device cable to your computer and then attach the other end of the cable to the IEEE 1394a device. Ensure that the cable is securely connected.

18) COMA (Serial Port Header)

The COMA header can provide one serial port via an optional COM port cable. For purchasing the optional COM port cable, please contact the local dealer.

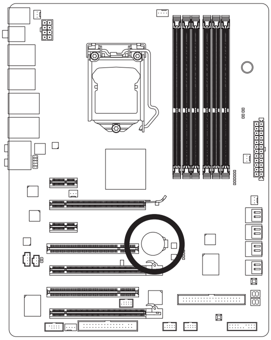


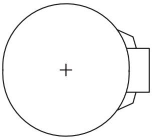


Pin No.	Definition
1	NDCD-
2	NSIN
3	NSOUT
4	NDTR-
5	GND
6	NDSR-
7	NRTS-
8	NCTS-
9	NRI-
10	No Pin

19) BAT (Battery)

The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.





You may clear the CMOS values by removing the battery:

1. Turn off your computer and unplug the power cord.
2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making them short for 5 seconds.)
3. Replace the battery.
4. Plug in the power cord and restart your computer.

- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up).
- Used batteries must be handled in accordance with local environmental regulations.

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the CMOS on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the <Delete> key during the POST when the power is turned on. To see more advanced BIOS Setup menu options, you can press <Ctrl> + <F1> in the main menu of the BIOS Setup program.

To upgrade the BIOS, use either the GIGABYTE Q-Flash or @BIOS utility.

- Q-Flash allows the user to quickly and easily upgrade or back up BIOS without entering the operating system.
- @BIOS is a Windows-based utility that searches and downloads the latest version of BIOS from the Internet and updates the BIOS.

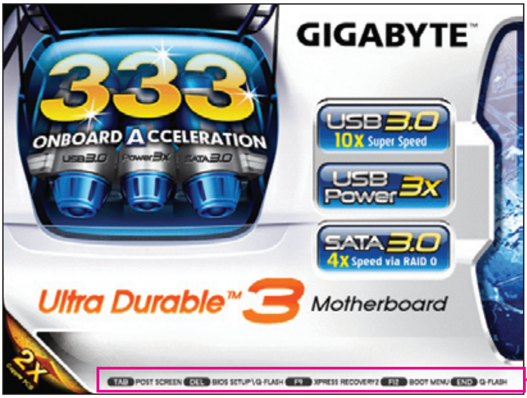
For instructions on using the Q-Flash and @BIOS utilities, refer to Chapter 4, "BIOS Update Utilities."

- Because BIOS flashing is potentially risky, if you do not encounter problems using the current version of BIOS, it is recommended that you not flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- BIOS will emit a beep code during the POST. Refer to Chapter 5, "Troubleshooting," for the beep codes description.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the "Load Optimized Defaults" section in this chapter or introductions of the clearing CMOS button/battery in Chapter 1 for how to clear the CMOS values.)

2-1 Startup Screen

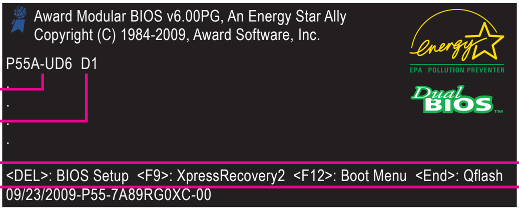
The following screens may appear when the computer boots.

A. The LOGO Screen (Default)


GIGABYTE
333
ONBOARD ACCELERATION
USB 3.0
Power 3X
SATA 3.0
USB 3.0 10X Super Speed
USB Power 3X
SATA 3.0 4X Speed via RAID 0
Ultra Durable™ 3 Motherboard
2X
TAB POST SCREEN
DEL BIOS SETUP\Q-FLASH
F9 XPRESS RECOVERY2
F12 BOOT MENU
END Q-FLASH

Function Keys

B. The POST Screen



```
Award Modular BIOS v6.00PG, An Energy Star Ally
Copyright (C) 1984-2009, Award Software, Inc.
P55A-UD6  D1
.
.
.
.
<DEL>: BIOS Setup  <F9>: XpressRecovery2  <F12>: Boot Menu  <End>: Qflash
09/23/2009-P55-7A89RG0XC-00
```

EPA POLLUTION PREVENTER
Dual BIOS

Motherboard Model

BIOS Version

Function Keys

Function Keys:

<TAB>: POST SCREEN

Press the <Tab> key to show the BIOS POST screen. To show the BIOS POST screen at system startup, refer to the instructions on the **Full Screen LOGO Show** item on page 52.

<DEL>: BIOS SETUP\Q-FLASH

Press the <Delete> key to enter BIOS Setup or to access the Q-Flash utility in BIOS Setup.

<F9>: XPRESS RECOVERY2

If you have ever entered Xpress Recovery2 to back up hard drive data using the driver disk, the <F9> key can be used for subsequent access to Xpress Recovery2 during the POST. For more information, refer to Chapter 4, "Xpress Recovery2."

<F12>: BOOT MENU

Boot Menu allows you to set the first boot device without entering BIOS Setup. In Boot Menu, use the up arrow key <↑> or the down arrow key <↓> to select the first boot device, then press <Enter> to accept. To exit Boot Menu, press <Esc>. The system will directly boot from the device configured in Boot Menu.

Note: The setting in Boot Menu is effective for one time only. After system restart, the device boot order will still be based on BIOS Setup settings. You can access Boot Menu again to change the first boot device setting as needed.

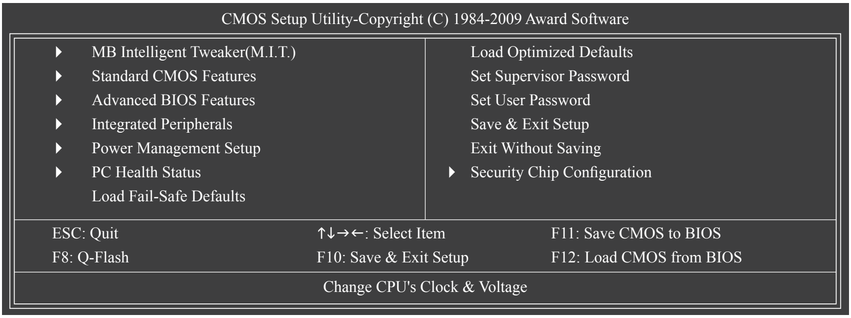
<END>: Q-FLASH

Press the <End> key to access the Q-Flash utility directly without having to enter BIOS Setup first.

2-2 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.

(Sample BIOS Version: D1)



CMOS Setup Utility-Copyright (C) 1984-2009 Award Software

▶ MB Intelligent Tweaker(M.I.T.)
▶ Standard CMOS Features
▶ Advanced BIOS Features
▶ Integrated Peripherals
▶ Power Management Setup
▶ PC Health Status
Load Fail-Safe Defaults

Load Optimized Defaults
Set Supervisor Password
Set User Password
Save & Exit Setup
Exit Without Saving
▶ Security Chip Configuration

ESC: Quit
↑↓→←: Select Item
F11: Save CMOS to BIOS
F8: Q-Flash
F10: Save & Exit Setup
F12: Load CMOS from BIOS

Change CPU's Clock & Voltage

BIOS Setup Program Function Keys

<↑><↓><←><→>	Move the selection bar to select an item
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<Page Up>	Increase the numeric value or make changes
<Page Down>	Decrease the numeric value or make changes
<F1>	Show descriptions of the function keys
<F2>	Move cursor to the Item Help block on the right (submenus only)
<F5>	Restore the previous BIOS settings for the current submenus
<F6>	Load the Fail-Safe BIOS default settings for the current submenus
<F7>	Load the Optimized BIOS default settings for the current submenus
<F8>	Access the Q-Flash utility
<F9>	Display system information
<F10>	Save all the changes and exit the BIOS Setup program
<F11>	Save CMOS to BIOS
<F12>	Load CMOS from BIOS

Main Menu Help

The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.

- If you do not find the settings you want in the Main Menu or a submenu, press <Ctrl>+<F1> to access more advanced options.
- When the system is not stable as usual, select the **Load Optimized Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

The Functions of the <F11> and <F12> keys (For the Main Menu Only)

F11: Save CMOS to BIOS

This function allows you to save the current BIOS settings to a profile. You can create up to 8 profiles (Profile 1-8) and name each profile. First enter the profile name (to erase the default profile name, use the SPACE key) and then press <Enter> to complete.

F12: Load CMOS from BIOS

If your system becomes unstable and you have loaded the BIOS default settings, you can use this function to load the BIOS settings from a profile created before, without the hassles of reconfiguring the BIOS settings. First select the profile you wish to load, then press <Enter> to complete.

MB Intelligent Tweaker(M.I.T.)

Use this menu to configure the clock, frequency and voltages of your CPU, memory, etc.

Standard CMOS Features

Use this menu to configure the system time and date, hard drive types, floppy disk drive types, and the type of errors that stop the system boot, etc.

Advanced BIOS Features

Use this menu to configure the device boot order, advanced features available on the CPU, and the primary display adapter.

Integrated Peripherals

Use this menu to configure all peripheral devices, such as IDE, SATA, USB, integrated audio, and integrated LAN, etc.

Power Management Setup

Use this menu to configure all the power-saving functions.

PC Health Status

Use this menu to see information about autodetected system/CPU temperature, system voltage and fan speed, etc.

Load Fail-Safe Defaults

Fail-Safe defaults are factory settings for the most stable, minimal-performance system operations.

Load Optimized Defaults

Optimized defaults are factory settings for optimal-performance system operations.

Set Supervisor Password

Change, set, or disable password. It allows you to restrict access to the system and BIOS Setup.
A supervisor password allows you to make changes in BIOS Setup.

Set User Password

Change, set, or disable password. It allows you to restrict access to the system and BIOS Setup.
A user password only allows you to view the BIOS settings but not to make changes.

Save & Exit Setup

Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)

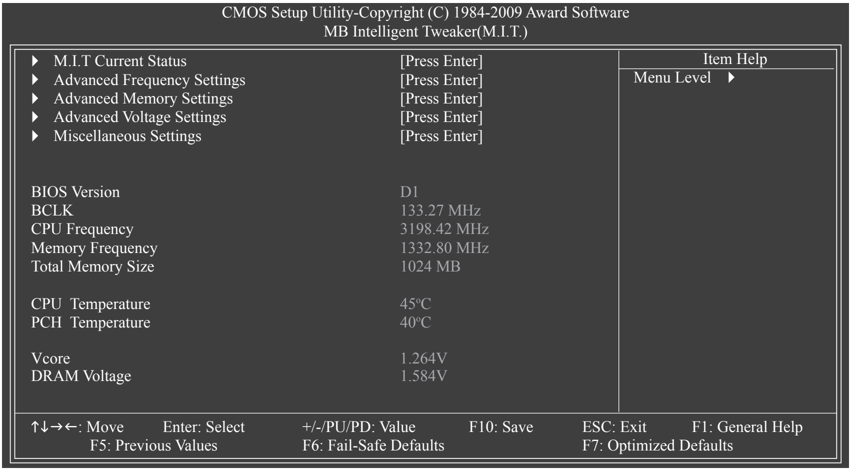
Exit Without Saving

Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

Security Chip Configuration

Use this menu to configure the TPM function.

2-3 MB Intelligent Tweaker(M.I.T.)



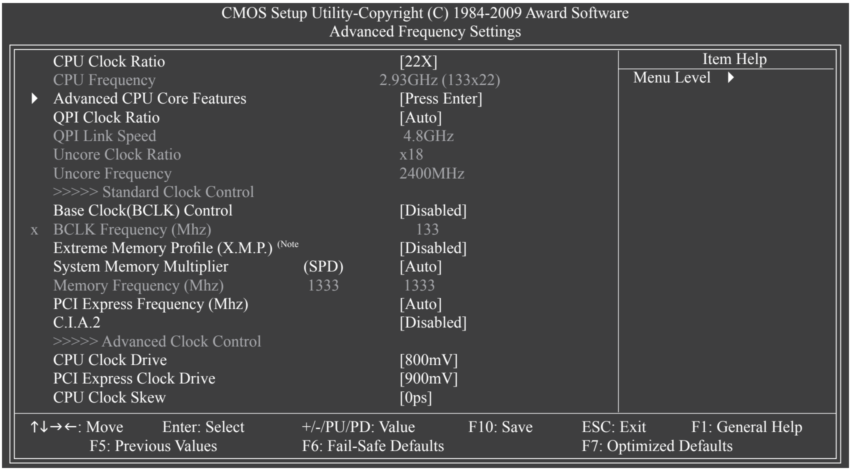
```
                CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                            MB Intelligent Tweaker(M.I.T.)

 ▶  M.I.T Current Status                  [Press Enter]        Item Help
 ▶  Advanced Frequency Settings           [Press Enter]     Menu Level  ▶
 ▶  Advanced Memory Settings              [Press Enter]
 ▶  Advanced Voltage Settings             [Press Enter]
 ▶  Miscellaneous Settings                [Press Enter]


 BIOS Version                             D1
 BCLK                                     133.27 MHz
 CPU Frequency                            3198.42 MHz
 Memory Frequency                         1332.80 MHz
 Total Memory Size                        1024 MB

 CPU  Temperature                         45°C
 PCH  Temperature                         40°C

 Vcore                                    1.264V
 DRAM Voltage                             1.584V

 ↑↓→←: Move     Enter: Select     +/-/PU/PD: Value     F10: Save     ESC: Exit     F1: General Help
          F5: Previous Values     F6: Fail-Safe Defaults               F7: Optimized Defaults
```

Whether the system will work stably with the overclock/overvoltage settings you made is dependent on your overall system configurations. Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This page is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Inadequately altering the settings may result in system's failure to boot. If this occurs, clear the CMOS values and reset the board to default values.)

▶ M.I.T. Current Status

This screen provides information on CPU/memory frequencies/parameters.

▶ Advanced Frequency Settings



```
                CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                              Advanced Frequency Settings

    CPU Clock Ratio                             [22X]                Item Help
    CPU Frequency                            2.93GHz (133x22)     Menu Level  ▶
 ▶  Advanced CPU Core Features                  [Press Enter]
    QPI Clock Ratio                             [Auto]
    QPI Link Speed                               4.8GHz
    Uncore Clock Ratio                          x18
    Uncore Frequency                            2400MHz
    >>>>> Standard Clock Control
    Base Clock(BCLK) Control                    [Disabled]
 x  BCLK Frequency (Mhz)                          133
    Extreme Memory Profile (X.M.P.) (Note       [Disabled]
    System Memory Multiplier         (SPD)      [Auto]
    Memory Frequency (Mhz)            1333       1333
    PCI Express Frequency (Mhz)                 [Auto]
    C.I.A.2                                     [Disabled]
    >>>>> Advanced Clock Control
    CPU Clock Drive                             [800mV]
    PCI Express Clock Drive                     [900mV]
    CPU Clock Skew                              [0ps]

 ↑↓→←: Move     Enter: Select     +/-/PU/PD: Value     F10: Save     ESC: Exit     F1: General Help
          F5: Previous Values     F6: Fail-Safe Defaults               F7: Optimized Defaults
```

(Note) This item appears only if you install a memory module that supports this feature.

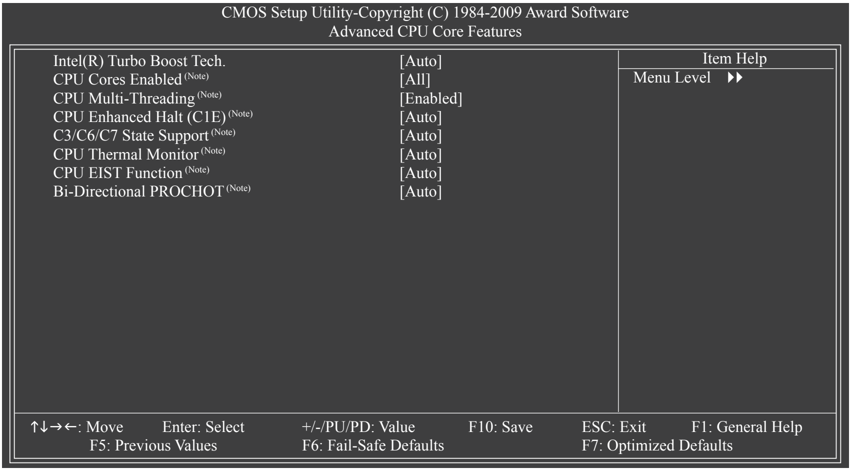
CPU Clock Ratio

Allows you to alter the clock ratio for the installed CPU. The adjustable range is dependent on the CPU being installed.

CPU Frequency

Displays the current operating CPU frequency.

Advanced CPU Core Features



```
                  CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                               Advanced CPU Core Features

   Intel(R) Turbo Boost Tech.                 [Auto]              Item Help
   CPU Cores Enabled (Note)                   [All]          Menu Level  ▸▸
   CPU Multi-Threading (Note)                 [Enabled]
   CPU Enhanced Halt (C1E) (Note)             [Auto]
   C3/C6/C7 State Support (Note)              [Auto]
   CPU Thermal Monitor (Note)                 [Auto]
   CPU EIST Function (Note)                   [Auto]
   Bi-Directional PROCHOT (Note)              [Auto]

 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
        F5: Previous Values     F6: Fail-Safe Defaults           F7: Optimized Defaults
```

Intel(R) Turbo Boost Tech.

Allows you to determine whether to enable the Intel CPU Turbo Boost technology. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

CPU Cores Enabled (Note)

Allows you to determine whether to enable all CPU cores.

▸▸ All	Enables all CPU cores. (Default)
▸▸ 1	Enables only one CPU core.
▸▸ 2	Enables only two CPU cores.
▸▸ 3	Enables only three CPU cores.

CPU Multi-Threading (Note)

Allows you to determine whether to enable multi-threading technology when using an Intel CPU that supports this function. This feature only works for operating systems that support multi-processor mode. (Default: Enabled)

CPU Enhanced Halt (C1E) (Note)

Enables or disables Intel CPU Enhanced Halt (C1E) function, a CPU power-saving function in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ C3/C6/C7 State Support (Note)

Allows you to determine whether to let the CPU enter C3/C6/C7 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3/C6/C7 state is a more enhanced power-saving state than C1. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ CPU Thermal Monitor (Note)

Enables or disables Intel CPU Thermal Monitor function, a CPU overheating protection function. When enabled, the CPU core frequency and voltage will be reduced when the CPU is overheated. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ CPU EIST Function (Note)

Enables or disables Enhanced Intel SpeedStep Technology (EIST). Depending on CPU loading, Intel EIST technology can dynamically and effectively lower the CPU voltage and core frequency to decrease average power consumption and heat production. **Auto** lets the BIOS automatically configure this setting. (Default: Auto)

☞ Bi-Directional PROCHOT (Note)

⏩ Auto	Lets the BIOS automatically configure this setting. (Default)
⏩ Enabled	When the CPU or chipset detects that an overheating is occurring, PROCHOT signals will be emitted to lower CPU performance to decrease heat production.
⏩ Disabled	Only allows the CPU to detect whether an overheating is occurring to emit PROCHOT signals.

☞ QPI Clock Ratio

Allows you to set the QPI clock ratio. Options are: Auto (default), x32, x36. The item is adjustable only if a CPU with unlocked clock ratio is installed.

☞ QPI Link Speed

Displays the current operating QPI link speed.

☞ Uncore Clock Ratio

Displays the Uncore clock ratio.

☞ Uncore Frequency

This value is determined by multiplying the **BLCK Frequency** value by the **Uncore Clock Ratio** value.

>>>>> Standard Clock Control

☞ Base Clock(BCLK) Control

Enables or disables the control of CPU base clock. **Enabled** will allow the **BCLK Frequency(Mhz)** item below to be configurable. Note: If your system fails to boot after overclocking, please wait for 20 seconds to allow for automated system reboot, or clear the CMOS values to reset the board to default values. (Default: Disabled)

☞ BCLK Frequency(Mhz)

Allows you to manually set the CPU base clock. The adjustable range is from 100 MHz to 1200 MHz. This item is configurable only if the **Base Clock(BCLK) Control** option is enabled.

Important: It is highly recommended that the CPU frequency be set in accordance with the CPU specifications.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

☞ Extreme Memory Profile (X.M.P.) (Note)

Allows the BIOS to read the SPD data on XMP memory module(s) to enhance memory performance when enabled.

⏩ Disabled	Disables this function. (Default)
⏩ Profile1	Uses Profile 1 settings.
⏩ Profile2 (Note)	Uses Profile 2 settings.

☞ System Memory Multiplier (SPD)

Allows you to set the system memory multiplier. **Auto** sets memory multiplier according to memory SPD data. (Default: Auto)

☞ Memory Frequency(Mhz)

The first memory frequency value is the normal operating frequency of the memory being used; the second is the memory frequency that is automatically adjusted according to the **BCLK Frequency(Mhz)** and **System Memory Multiplier** settings.

☞ PCI Express Frequency(Mhz)

Allows you to manually set the PCIe clock frequency. The adjustable range is from 90 MHz to 150 MHz. **Auto** sets the PCIe clock frequency to standard 100 MHz. (Default: Auto)

☞ C.I.A.2

CPU Intelligent Accelerator 2 (C.I.A.2) is designed to automatically adjust CPU computing power to maximize system performance. C.I.A.2 allows your system bus to be changed dynamically based on CPU loading through the use of 5 preset states.

Note: System stability varies, depending on your system hardware components.

⏩ Disabled	Disables the use of C.I.A.2. (Default)
⏩ Cruise	Increases CPU frequency by 5% or 7% depending on CPU loading.
⏩ Sports	Increases CPU frequency by 7% or 9% depending on CPU loading.
⏩ Racing	Increases CPU frequency by 9% or 11% depending on CPU loading.
⏩ Turbo	Increases CPU frequency by 15% or 17% depending on CPU loading.
⏩ Full Thrust	Increases CPU frequency by 17% or 19% depending on CPU loading.

Warning: Before using C.I.A.2, please first verify the overclocking capability of your CPU. As stability is highly dependent on system components, when system instability occurs after overclocking, lower the overclocking ratio.

>>>>> Advanced Clock Control

☞ CPU Clock Drive

Allows you to adjust the amplitude of the CPU and the Chipset clock.

Options are: 700mV, 800mV (default), 900mV, 1000mV.

☞ PCI Express Clock Drive

Allows you to adjust the amplitude of the PCI Express and Chipset clock.

Options are: 700mV, 800mV, 900mV (default), 1000mV.

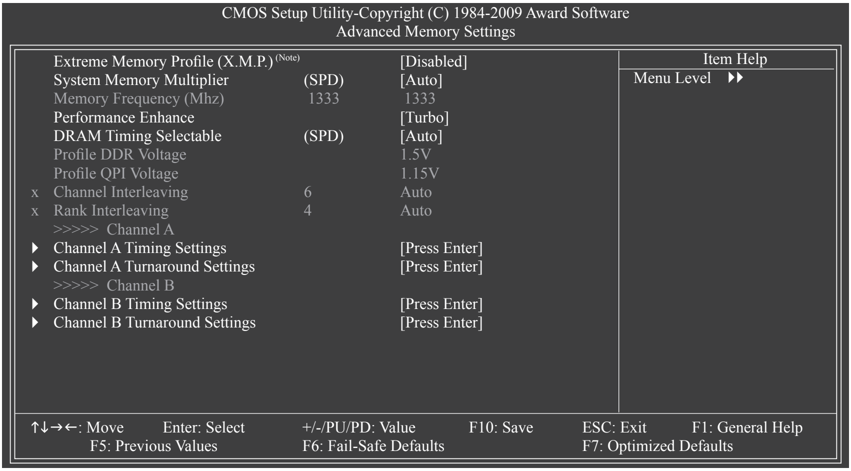
☞ CPU Clock Skew

Allows you to set the CPU clock prior to the Chipset clock.

Options are: 0ps~750ps. (Default: 0ps)

(Note) This item appears only if you install a memory module that supports this feature.

Advanced Memory Settings



```
                 CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                              Advanced Memory Settings

     Extreme Memory Profile (X.M.P.) (Note)          [Disabled]         Item Help
     System Memory Multiplier          (SPD)         [Auto]           Menu Level  ▸▸
     Memory Frequency (Mhz)             1333          1333
     Performance Enhance                             [Turbo]
     DRAM Timing Selectable            (SPD)         [Auto]
     Profile DDR Voltage                             1.5V
     Profile QPI Voltage                             1.15V
  x  Channel Interleaving              6             Auto
  x  Rank Interleaving                 4             Auto
     >>>>>  Channel A
  ▸  Channel A Timing Settings                       [Press Enter]
  ▸  Channel A Turnaround Settings                   [Press Enter]
     >>>>>  Channel B
  ▸  Channel B Timing Settings                       [Press Enter]
  ▸  Channel B Turnaround Settings                   [Press Enter]

  ↑↓→←: Move      Enter: Select     +/-/PU/PD: Value      F10: Save      ESC: Exit      F1: General Help
        F5: Previous Values         F6: Fail-Safe Defaults               F7: Optimized Defaults
```

Extreme Memory Profile (X.M.P.) (Note)

Allows the BIOS to read the SPD data on XMP memory module(s) to enhance memory performance when enabled.

▸▸ Disabled	Disables this function. (Default)
▸▸ Profile1	Uses Profile 1 settings.
▸▸ Profile2 (Note)	Uses Profile 2 settings.

System Memory Multiplier (SPD)

Allows you to set the system memory multiplier. **Auto** sets memory multiplier according to memory SPD data. (Default: Auto)

Memory Frequency(Mhz)

The first memory frequency value is the normal operating frequency of the memory being used; the second is the memory frequency that is automatically adjusted according to the **BCLK Frequency(Mhz)** and **System Memory Multiplier** settings.

Performance Enhance

Allows the system to operate at three different performance levels.

▸▸ Standard	Lets the system operate at its basic performance level.
▸▸ Turbo	Lets the system operate at its good performance level. (Default)
▸▸ Extreme	Lets the system operate at its best performance level.

DRAM Timing Selectable (SPD)

Quick and **Expert** allows the **Channel Interleaving** and **Rank Interleaving** items to be configurable. Options are: Auto (default), Quick, Expert.

Profile DDR Voltage

When using a non-XMP memory module or **Extreme Memory Profile (X.M.P.)** is set to **Disabled**, this item will display as **1.5V**. When **Extreme Memory Profile (X.M.P.)** is set to **Profile1** or **Profile2**, this item will display the value based on the SPD data on the XMP memory.

(Note) This item appears only if you install a memory module that supports this feature.

☞ Profile QPI Voltage

The value displayed here is dependent on the CPU being used.

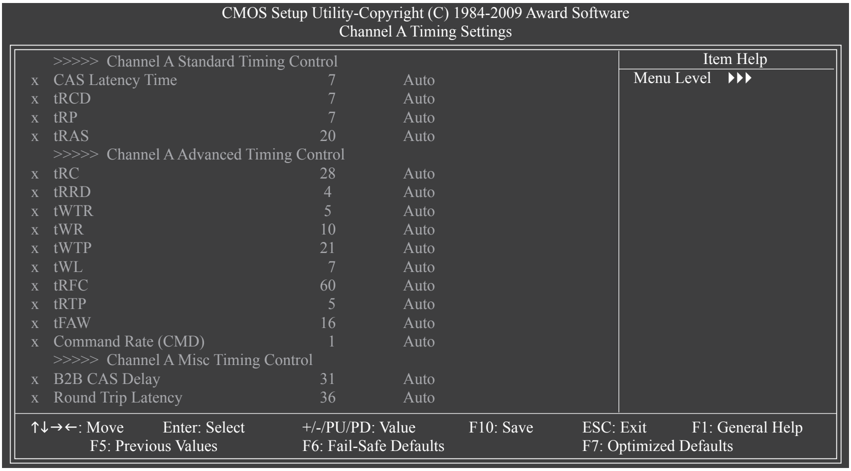
☞ Channel Interleaving

Options are: Auto (default), 1~6.

☞ Rank Interleaving

Options are: Auto (default), 1~4.

>>>>> Channel A/B Timing Settings



```
              CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                           Channel A Timing Settings

    >>>>> Channel A Standard Timing Control                       Item Help
x   CAS Latency Time              7          Auto          Menu Level   ▶▶▶
x   tRCD                          7          Auto
x   tRP                           7          Auto
x   tRAS                         20          Auto
    >>>>> Channel A Advanced Timing Control
x   tRC                          28          Auto
x   tRRD                          4          Auto
x   tWTR                          5          Auto
x   tWR                          10          Auto
x   tWTP                         21          Auto
x   tWL                           7          Auto
x   tRFC                         60          Auto
x   tRTP                          5          Auto
x   tFAW                         16          Auto
x   Command Rate (CMD)            1          Auto
    >>>>> Channel A Misc Timing Control
x   B2B CAS Delay                31          Auto
x   Round Trip Latency           36          Auto

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
        F5: Previous Values    F6: Fail-Safe Defaults            F7: Optimized Defaults
```

>>>>> Channel A/B Standard Timing Control

☞ CAS Latency Time

Options are: Auto (default), 6~15.

☞ tRCD

Options are: Auto (default), 1~15.

☞ tRP

Options are: Auto (default), 1~15.

☞ tRAS

Options are: Auto (default), 1~31.

>>>>> Channel A/B Advanced Timing Control

☞ tRC

Options are: Auto (default), 1~63.

☞ tRRD

Options are: Auto (default), 1~7.

☞ tWTR

Options are: Auto (default), 1~31.

☞ tWR

Options are: Auto (default), 1~15.

☞ **tWTP**

Options are: Auto (default), 1~31.

☞ **tWL**

Options are: Auto (default), 1~10

☞ **tRFC**

Options are: Auto (default), 1~255.

☞ **tRTP**

Options are: Auto (default), 1~15.

☞ **tFAW**

Options are: Auto (default), 1~63.

☞ **Command Rate(CMD)**

Options are: Auto (default), 1~3.

>>>>> Channel A/B Misc Timing Control

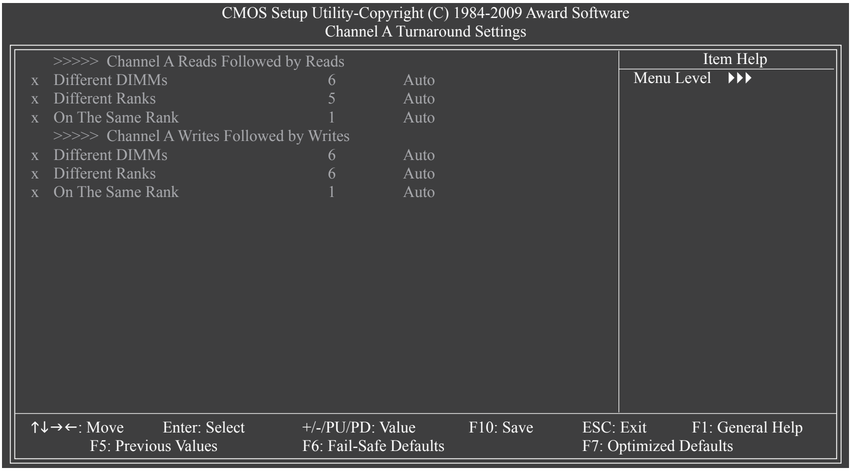
☞ **B2B CAS Delay**

Options are: Auto (default), 1~31.

☞ **Round Trip Latency**

Options are: Auto (default), 1~255.

>>>>> Channel A/B Turnaround Settings



```
CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
Channel A Turnaround Settings

   >>>>>  Channel A Reads Followed by Reads                          Item Help
x  Different DIMMs                   6          Auto             Menu Level  ▶▶▶
x  Different Ranks                   5          Auto
x  On The Same Rank                  1          Auto
   >>>>>  Channel A Writes Followed by Writes
x  Different DIMMs                   6          Auto
x  Different Ranks                   6          Auto
x  On The Same Rank                  1          Auto

↑↓→←: Move     Enter: Select     +/-/PU/PD: Value     F10: Save     ESC: Exit     F1: General Help
        F5: Previous Values      F6: Fail-Safe Defaults             F7: Optimized Defaults
```

>>>>> Channel A/B Reads Followed by Reads

☞ Different DIMMs

Options are: Auto (default), 1~8.

☞ Different Ranks

Options are: Auto (default), 1~8.

☞ On The Same Rank

Options are: Auto (default), 1~2.

>>>>> Channel A/B Writes Followed by Writes

☞ Different DIMMs

Options are: Auto (default), 1~8.

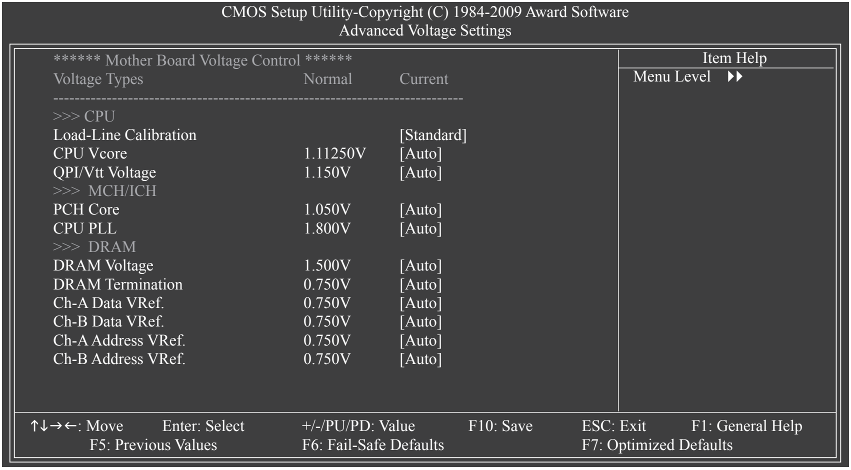
☞ Different Ranks

Options are: Auto (default), 1~8.

☞ On The Same Rank

Options are: Auto (default), 1~2.

▶ Advanced Voltage Settings



```
              CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                          Advanced Voltage Settings

   ****** Mother Board Voltage Control ******                     Item Help
   Voltage Types                Normal      Current            Menu Level  ▶▶
   ---------------------------------------------------------
   >>> CPU
   Load-Line Calibration                    [Standard]
   CPU Vcore                    1.11250V    [Auto]
   QPI/Vtt Voltage              1.150V      [Auto]
   >>>  MCH/ICH
   PCH Core                     1.050V      [Auto]
   CPU PLL                      1.800V      [Auto]
   >>>  DRAM
   DRAM Voltage                 1.500V      [Auto]
   DRAM Termination             0.750V      [Auto]
   Ch-A Data VRef.              0.750V      [Auto]
   Ch-B Data VRef.              0.750V      [Auto]
   Ch-A Address VRef.           0.750V      [Auto]
   Ch-B Address VRef.           0.750V      [Auto]

 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
          F5: Previous Values   F6: Fail-Safe Defaults           F7: Optimized Defaults
```

>>> CPU

☞ Load-Line Calibration

Enables or disables Load-Line Calibration. This item allows you to adjust Vdroop at different levels. Enabling Load-Line Calibration may keep the CPU voltage more constant under light and heavy CPU load.

►► Standard	Disables Load-Line Calibration and sets VDroop following Intel specifications. (Default)
►► Level 1	Enables Load-Line Calibration and slightly adjusts VDroop.
►► Level 2	Enables Load-Line Calibration and moderately adjusts VDroop.

Note: Enabling Load-Line Calibration may result in damage to your CPU or reduce the useful life of the CPU.

☞ CPU Vcore

The default is **Auto**.

☞ QPI/Vtt Voltage

The default is **Auto**.

>>> MCH/ICH

☞ PCH Core

The default is **Auto**.

☞ CPU PLL

The default is **Auto**.

>>> DRAM

☞ DRAM Voltage

The default is **Auto**.

☞ DRAM Termination

The default is **Auto**.

☞ Ch-A Data VRef.

The default is **Auto**.

☞ Ch-B Data VRef.

The default is **Auto**.

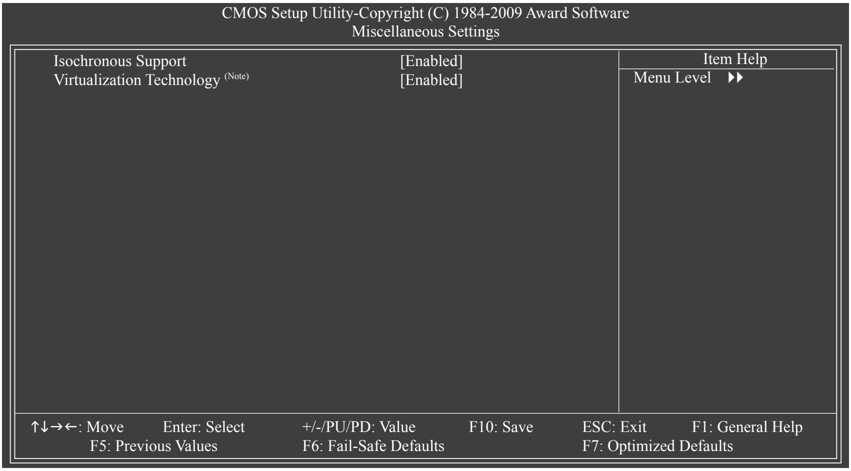
☞ Ch-A Address VRef.

The default is **Auto**.

☞ Ch-B Address VRef.

The default is **Auto**.

Miscellaneous Settings



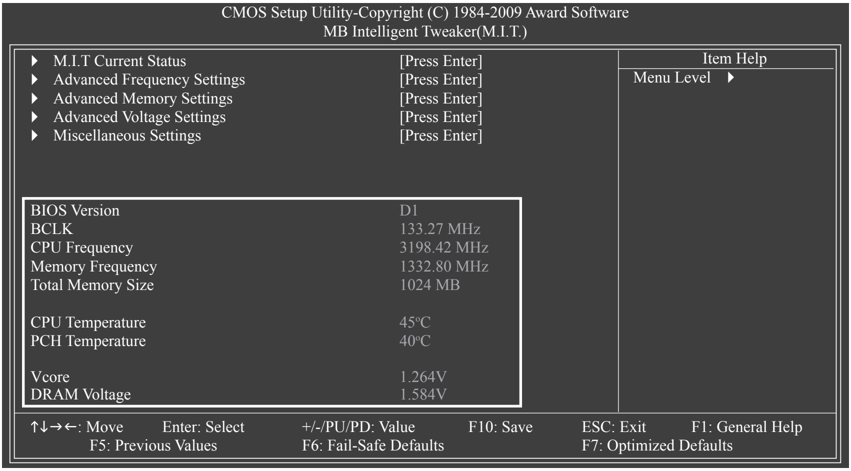
```
CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
Miscellaneous Settings

Isochronous Support                        [Enabled]          Item Help
Virtualization Technology (Note)           [Enabled]          Menu Level   ▶▶

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values      F6: Fail-Safe Defaults           F7: Optimized Defaults
```

Isochronous Support

Determines whether to enable specific streams within the CPU and Chipset. (Default: Enabled)

Virtualization Technology (Note)

Enables or disables Intel Virtualization Technology. Virtualization enhanced by Intel Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. (Default: Enabled)

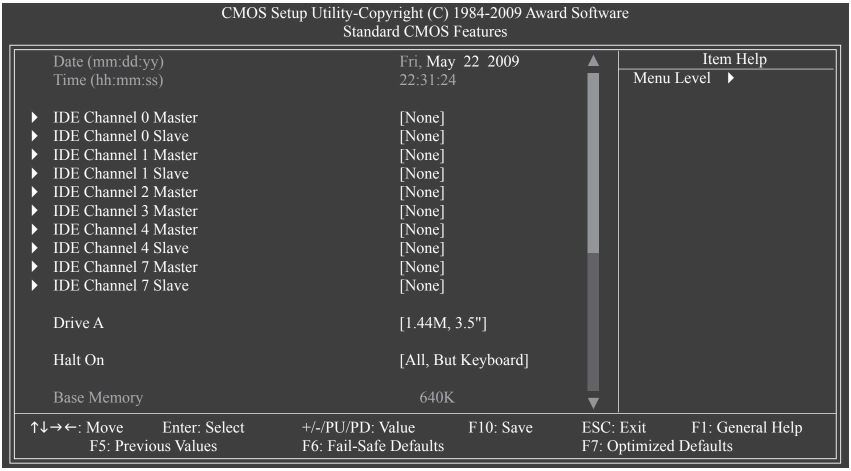


```
CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
MB Intelligent Tweaker(M.I.T.)

▶ M.I.T Current Status                     [Press Enter]      Item Help
▶ Advanced Frequency Settings              [Press Enter]      Menu Level   ▶
▶ Advanced Memory Settings                 [Press Enter]
▶ Advanced Voltage Settings                [Press Enter]
▶ Miscellaneous Settings                   [Press Enter]

BIOS Version                               D1
BCLK                                       133.27 MHz
CPU Frequency                              3198.42 MHz
Memory Frequency                           1332.80 MHz
Total Memory Size                          1024 MB

CPU Temperature                            45°C
PCH Temperature                            40°C

Vcore                                      1.264V
DRAM Voltage                               1.584V

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values      F6: Fail-Safe Defaults           F7: Optimized Defaults
```

This section provides information on the BIOS version, CPU base clock, CPU frequency, memory frequency, total memory size , CPU temperature, Chipset temperature, Vcore, and memory voltage.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

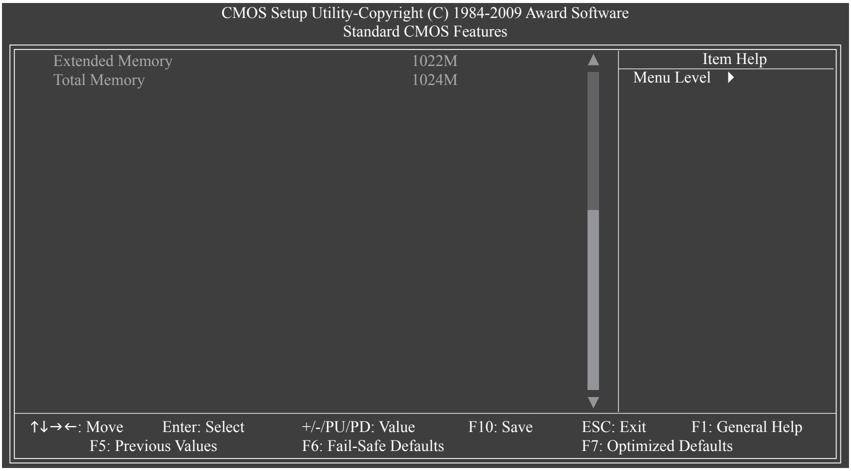
2-4 Standard CMOS Features



CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
Standard CMOS Features

Date (mm:dd:yy)	Fri, May 22 2009
Time (hh:mm:ss)	22:31:24
▶ IDE Channel 0 Master	[None]
▶ IDE Channel 0 Slave	[None]
▶ IDE Channel 1 Master	[None]
▶ IDE Channel 1 Slave	[None]
▶ IDE Channel 2 Master	[None]
▶ IDE Channel 3 Master	[None]
▶ IDE Channel 4 Master	[None]
▶ IDE Channel 4 Slave	[None]
▶ IDE Channel 7 Master	[None]
▶ IDE Channel 7 Slave	[None]
Drive A	[1.44M, 3.5"]
Halt On	[All, But Keyboard]
Base Memory	640K

Item Help
Menu Level ▶
↑↓→←: Move
Enter: Select
+/-/PU/PD: Value
F10: Save
ESC: Exit
F1: General Help
F5: Previous Values
F6: Fail-Safe Defaults
F7: Optimized Defaults



CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
Standard CMOS Features

Extended Memory	1022M
Total Memory	1024M

Item Help
Menu Level ▶
↑↓→←: Move
Enter: Select
+/-/PU/PD: Value
F10: Save
ESC: Exit
F1: General Help
F5: Previous Values
F6: Fail-Safe Defaults
F7: Optimized Defaults

☞ Date (mm:dd:yy)

Sets the system date. The date format is week (read-only), month, date and year. Select the desired field and use the up arrow or down arrow key to set the date.

☞ Time (hh:mm:ss)

Sets the system time. For example, 1 p.m. is 13:0:0. Select the desired field and use the up arrow or down arrow key to set the time.

☞ IDE Channel 0, 1 Master/Slave

▶▶ IDE HDD Auto-Detection

Press <Enter> to autodetect the parameters of the IDE/SATA device on this channel.

▶▶ IDE Channel 0, 1 Master/Slave

Configure your IDE/SATA devices by using one of the three methods below:

• Auto	Lets the BIOS automatically detect IDE/SATA devices during the POST. (Default)
• None	If no IDE/SATA devices are used, set this item to **None** so the system will skip the detection of the device during the POST for faster system startup.
• Manual	Allows you to manually enter the specifications of the hard drive when the hard drive access mode is set to **CHS**.
▶▶ Access Mode	Sets the hard drive access mode. Options are: Auto (default), CHS, LBA, Large.

IDE Channel 2, 3 Master, 4, 7 Master/Slave

▶▶ IDE Auto-Detection

Press <Enter> to autodetect the parameters of the IDE/SATA device on this channel.

▶▶ Extended IDE Drive

Configure your IDE/SATA devices by using one of the two methods below:

• Auto	Lets the BIOS automatically detect IDE/SATA devices during the POST. (Default)
• None	If no IDE/SATA devices are used, set this item to **None** so the system will skip the detection of the device during the POST for faster system startup.
▶▶ Access Mode	Sets the hard drive access mode. Options are: Auto (default), Large.

The following fields display your hard drive specifications. If you wish to enter the parameters manually, refer to the information on the hard drive.

▶▶ Capacity	Approximate capacity of the currently installed hard drive.
▶▶ Cylinder	Number of cylinders.
▶▶ Head	Number of heads.
▶▶ Precomp	Write precompensation cylinder.
▶▶ Landing Zone	Landing zone.
▶▶ Sector	Number of sectors.

Drive A

Allows you to select the type of floppy disk drive installed in your system. If you do not install a floppy disk drive, set this item to **None**. Options are: None, 360K/5.25", 1.2M/5.25", 720K/3.5", 1.44M/3.5", 2.88M/3.5".

Halt On

Allows you to determine whether the system will stop for an error during the POST.

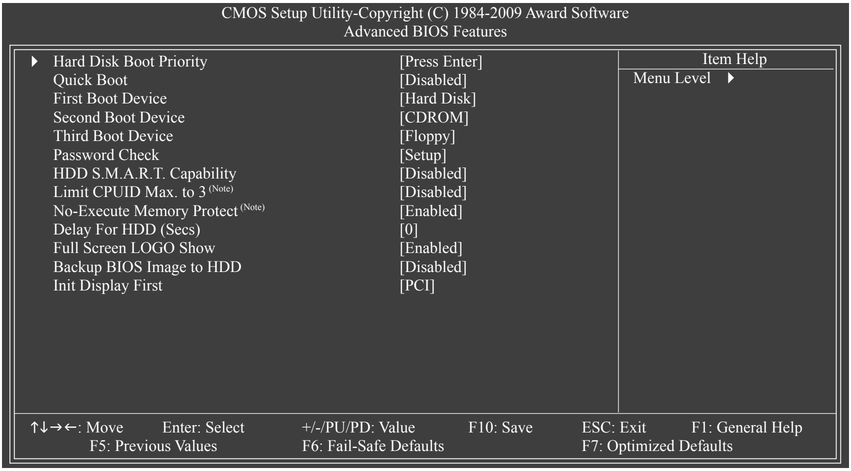
▶▶ All Errors	Whenever the BIOS detects a non-fatal error the system boot will stop.
▶▶ No Errors	The system boot will not stop for any error.
▶▶ All, But Keyboard	The system boot will not stop for a keyboard error but stop for all other errors. (Default)
▶▶ All, But Diskette	The system boot will not stop for a floppy disk drive error but stop for all other errors.
▶▶ All, But Disk/Key	The system boot will not stop for a keyboard or a floppy disk drive error but it will stop for all other errors.

Memory

These fields are read-only and are determined by the BIOS POST.

▶▶ Base Memory	Also called conventional memory. Typically, 640 KB will be reserved for the MS-DOS operating system.
▶▶ Extended Memory	The amount of extended memory.
▶▶ Total Memory	The total amount of memory installed on the system.

2-5 Advanced BIOS Features



```
                 CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                                  Advanced BIOS Features

 ▶ Hard Disk Boot Priority                    [Press Enter]        Item Help
   Quick Boot                                 [Disabled]           Menu Level  ▶
   First Boot Device                          [Hard Disk]
   Second Boot Device                         [CDROM]
   Third Boot Device                          [Floppy]
   Password Check                             [Setup]
   HDD S.M.A.R.T. Capability                  [Disabled]
   Limit CPUID Max. to 3 (Note)               [Disabled]
   No-Execute Memory Protect (Note)           [Enabled]
   Delay For HDD (Secs)                       [0]
   Full Screen LOGO Show                      [Enabled]
   Backup BIOS Image to HDD                   [Disabled]
   Init Display First                         [PCI]

 ↑↓→←: Move    Enter: Select     +/-/PU/PD: Value     F10: Save     ESC: Exit     F1: General Help
         F5: Previous Values     F6: Fail-Safe Defaults             F7: Optimized Defaults
```

☞ Hard Disk Boot Priority

Specifies the sequence of loading the operating system from the installed hard drives. Use the up or down arrow key to select a hard drive, then press the plus key <+> (or <PageUp>) or the minus key <-> (or <PageDown>) to move it up or down on the list. Press <Esc> to exit this menu when finished.

☞ Quick Boot

Enables or disables the quick boot function to speed up the system boot-up process to shorten the waiting time for entering the operating system and to deliver greater efficiency for daily use. The settings here synchronize with the settings of the SMART QuickBoot of Smart 6™. (Default: Disabled)

☞ First/Second/Third Boot Device

Specifies the boot order from the available devices. Use the up or down arrow key to select a device and press <Enter> to accept. Options are: Floppy, LS120, Hard Disk, CDROM, ZIP, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, Legacy LAN, Disabled.

☞ Password Check

Specifies whether a password is required every time the system boots, or only when you enter BIOS Setup. After configuring this item, set the password(s) under the **Set Supervisor/User Password** item in the BIOS Main Menu.

⏩ Setup	A password is only required for entering the BIOS Setup program. (Default)
⏩ System	A password is required for booting the system and for entering the BIOS Setup program.

☞ HDD S.M.A.R.T. Capability

Enables or disables the S.M.A.R.T. (Self Monitoring and Reporting Technology) capability of your hard drive. This feature allows your system to report read/write errors of the hard drive and to issue warnings when a third party hardware monitor utility is installed. (Default: Disabled)

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

Limit CPUID Max. to 3 (Note)

Allows you to determine whether to limit CPUID maximum value. Set this item to **Disabled** for Windows XP operating system; set this item to **Enabled** for legacy operating system such as Windows NT4.0. (Default: Disabled)

No-Execute Memory Protect (Note)

Enables or disables Intel Execute Disable Bit function. This function may enhance protection for the computer, reducing exposure to viruses and malicious buffer overflow attacks when working with its supporting software and system. (Default: Enabled)

Delay For HDD (Secs)

Allows you to set a delay time for the BIOS to initialize the hard drive as the system boots up. The adjustable range is from 0 to 15 seconds. (Default: 0)

Full Screen LOGO Show

Allows you to determine whether to display the GIGABYTE Logo at system startup. **Disabled** displays normal POST message. (Default: Enabled)

Backup BIOS Image to HDD

Allows the system to copy the BIOS image file to the hard drive. If the system BIOS is corrupted, it will be recovered from this image file. (Default: Disabled)

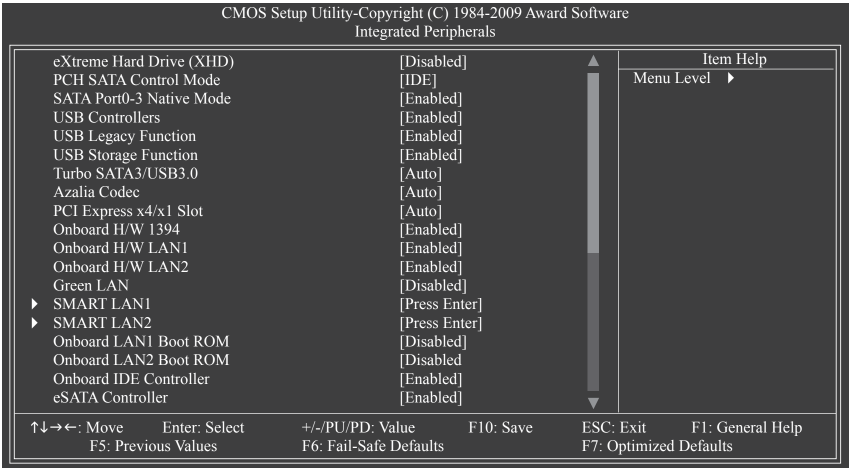
Init Display First

Specifies the first initiation of the monitor display from the installed PCI graphics card or the PCI Express graphics card.

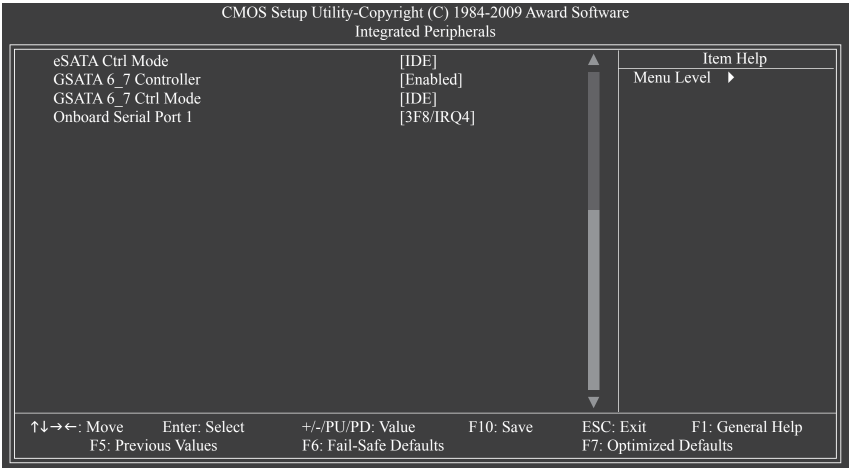
⏩ PCI	Sets the PCI graphics card as the first display. (Default)
⏩ PEG	Sets the PCI Express graphics card on the PCIEX16_1 slot as the first display.
⏩ PEG2	Sets the PCI Express graphics card on the PCIEX8_1 slot as the first display.
⏩ PEG3	Sets the PCI Express graphics card on the PCIEX4_1 slot as the first display.

(Note) This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

2-6 Integrated Peripherals



```
          CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                           Integrated Peripherals
   eXtreme Hard Drive (XHD)           [Disabled]        ▲    Item Help
   PCH SATA Control Mode              [IDE]                Menu Level  ▶
   SATA Port0-3 Native Mode           [Enabled]
   USB Controllers                    [Enabled]
   USB Legacy Function                [Enabled]
   USB Storage Function               [Enabled]
   Turbo SATA3/USB3.0                 [Auto]
   Azalia Codec                       [Auto]
   PCI Express x4/x1 Slot             [Auto]
   Onboard H/W 1394                   [Enabled]
   Onboard H/W LAN1                   [Enabled]
   Onboard H/W LAN2                   [Enabled]
   Green LAN                          [Disabled]
 ▶ SMART LAN1                         [Press Enter]
 ▶ SMART LAN2                         [Press Enter]
   Onboard LAN1 Boot ROM              [Disabled]
   Onboard LAN2 Boot ROM              [Disabled
   Onboard IDE Controller             [Enabled]
   eSATA Controller                   [Enabled]         ▼
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
        F5: Previous Values    F6: Fail-Safe Defaults            F7: Optimized Defaults
```



```
          CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                           Integrated Peripherals
   eSATA Ctrl Mode                    [IDE]             ▲    Item Help
   GSATA 6_7 Controller               [Enabled]            Menu Level  ▶
   GSATA 6_7 Ctrl Mode                [IDE]
   Onboard Serial Port 1              [3F8/IRQ4]
                                                        ▼
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
        F5: Previous Values    F6: Fail-Safe Defaults            F7: Optimized Defaults
```

☞ eXtreme Hard Drive (Intel P55 Chipset)

Enables or disables the X.H.D function for the SATA controllers integrated in the Intel P55 Chipset. When set to **Enabled**, the **PCH SATA Control Mode** item below will be set to **RAID(XHD)** automatically. For details on using the GIGABYTE X.H.D utility, refer to Chaper 4, "eXtreme Hard Drive (X.H.D)." (Default: Disabled)

☞ PCH SATA Control Mode (Intel P55 Chipset)

Enables or disables RAID for the SATA controllers integrated in the Intel P55 Chipset or configures the SATA controllers to AHCI mode.

⏩ IDE	Disables RAID for the SATA controllers and configures the SATA controllers to IDE mode. (Default)
⏩ RAID(XHD)	Enables RAID for the SATA controllers.

▸▸ AHCI	Configures the SATA controllers to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug.

☞ SATA Port0-3 Native Mode (Intel P55 Chipset)

Specifies the operating mode of the integrated SATA controllers.

▸▸ Disabled	Allows the SATA controllers to operate in Legacy IDE mode. In Legacy mode the SATA controllers use dedicated IRQs that cannot be shared with other device. Set this option to **Disabled** if you wish to install operating systems that do not support Native mode.
▸▸ Enabled	Allows the SATA controllers to operate in Native IDE mode. Enable Native IDE mode if you wish to install operating systems that support Native mode. (Default)

☞ USB Controllers

Enables or disables the integrated USB controllers. (Default: Enabled)

Disabled will turn off all of the USB functionalities below.

☞ USB Legacy Function

Allows USB keyboard to be used in MS-DOS. (Default: Enabled)

☞ USB Storage Function

Determines whether to detect USB storage devices, including USB flash drives and USB hard drives during the POST. (Default: Enabled)

☞ Turbo SATA3 / USB3.0 (Marvell 9128 /NEC USB 3.0 Controller)

Determines whether to set the PCIe speed of the Marvell 9128 or NEC USB 3.0 controller to PCIe Gen 2. Please note that when only one graphics card is installed on the PCIEX16_1 slot, it will operate at up to x8 mode if either one of the two controllers is set to PCIe Gen 2. The two controllers will be automatically set to PCIe Gen 1 when two graphics cards are installed on the PCIEX16_1 and PCIEX8_1 slots.

▸▸ Auto	Lets the BIOS automatically configure this setting, depending on the device installed. (Default)
▸▸ Turbo SATA3	Sets the PCIe speed of the Marvell 9128 controller to PCIe Gen 2.
▸▸ Turbo USB3.0	Sets the PCIe speed of the NEC USB 3.0 controller to PCIe Gen 2.
▸▸ Disabled	**Disabled** forces the Marvell 9128 and NEC USB 3.0 controllers to PCIe Gen 1.

☞ Azalia Codec

Enables or disables the onboard audio function. (Default: Auto)

If you wish to install a 3rd party add-in audio card instead of using the onboard audio, set this item to **Disabled**.

☞ PCI Express x4/x1 Slot

Specifies the operating bandwidth for the PCIEX4_1 slot.

▸▸ Auto	Sets the PCIEX4_1 slot to operate at x1 mode. (Default)
▸▸ x4	Sets the PCIEX4_1 slot to operate at x4 mode. Please note that due to bandwidth sharing, the PCI Express x1 slots and the eSATA connectors will become unavailable.

☞ Onboard H/W 1394

Enables or disables the onboard IEEE 1394 function. (Default: Enabled)

☞ Onboard H/W LAN1/2

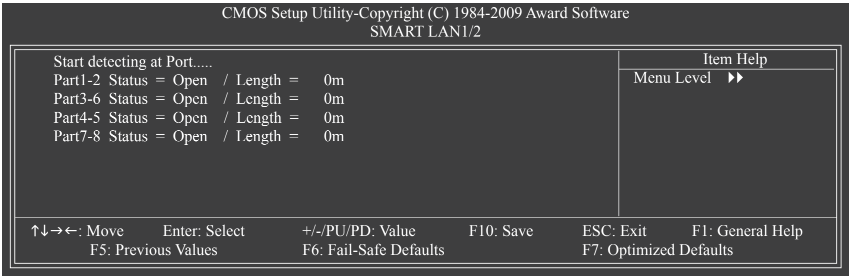
Enables or disables the onboard LAN function. (Default: Enabled)

If you wish to install a 3rd party add-in network card instead of using the onboard LAN, set this item to **Disabled**.

Green LAN

When the onboard LAN function and **Green LAN** are enabled, the system will dynamically detect if a LAN cable is connected or not. If not, the corresponding LAN controller will be disabled automatically. (Default: Disabled)

SMART LAN1/2



```
                CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                                     SMART LAN1/2
    Start detecting at Port.....                                          Item Help
    Part1-2  Status  =  Open   /  Length  =    0m                   Menu Level   ▶▶
    Part3-6  Status  =  Open   /  Length  =    0m
    Part4-5  Status  =  Open   /  Length  =    0m
    Part7-8  Status  =  Open   /  Length  =    0m

 ↑↓→←: Move     Enter: Select      +/-/PU/PD: Value     F10: Save     ESC: Exit        F1: General Help
          F5: Previous Values      F6: Fail-Safe Defaults              F7: Optimized Defaults
```

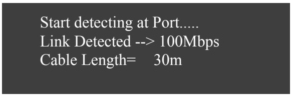
This motherboard incorporates cable diagnostic feature designed to detect the status of the attached LAN cable. This feature will detect cabling issue and report the approximate distance to the fault or short. Refer to the following information for diagnosing your LAN cable:

When No LAN Cable Is Attached...

If no LAN cable is attached to the motherboard, the **Status** fields of all four pairs of wires will show **Open** and the **Length** fields show **0m**, as shown in the figure above.

When LAN Cable Is Functioning Normally...

If no cable problem is detected on the LAN cable connected to a Gigabit hub or a 10/100 Mbps hub, the following message will appear:



```
Start detecting at Port.....
Link Detected --> 100Mbps
Cable Length=    30m
```

- Link Detected   Displays transmission speed.
- Cable Length   Displays the approximate length of the attached LAN cable.

Note: The Gigabit hub will only operate at a speed of 10/100 Mbps in MS-DOS mode; it will operate at a normal speed of 10/100/1000 Mbps in Windows mode or when the LAN Boot ROM is activated.

When a Cable Problem Occurs...

If a cable problem occurs on a specified pair of wires, the **Status** field will show **Short** and then length shown will be the approximate distance to the fault or short.

Example: `Part1-2 Status = Short / Length  =  2m`

Explanation: A fault or short might occur at about 2m on Part 1-2.

Note: Part 4-5 and Part 7-8 are not used in a 10/100 Mbps environment, so their **Status** fields will show **Open**, and the length shown is the approximate length of the attached LAN cable.

Onboard LAN1/LAN2 Boot ROM

Allows you to decide whether to activate the boot ROM integrated with the onboard LAN chip.
(Default: Disabled)

Onboard IDE Controller (IT8213 Chip)

Enables or disables the IDE controller integrated in the IT8213 chip. (Default: Enabled)

eSATA Controller (JMB362 Chip, eSATA Connectors on the Back Panel)

Enables or disables the SATA controller integrated in the JMB362 chip. (Default: Enabled)

eSATA Ctrl Mode (JMB362 Chip, eSATA Connectors on the Back Panel)

Enables or disables RAID for the SATA controller integrated in the JMB362 chip or configures the SATA controller to AHCI mode.

⏩ IDE	Disables RAID for the SATA controller and configures the SATA controller to IDE mode. (Default)
⏩ AHCI	Configures the SATA controller to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug.
⏩ RAID	Enables RAID for the SATA controller.

GSATA 6_7 Controller (Marvell 9128 Chip, GSATA3_6/7 Connectors)

Enables or disables the SATA controller integrated in the Marvell 9128 chip. (Default: Enabled)

GSATA 6_7 Ctrl Mode (Marvell 9128 Chip, GSATA3_6/7 Connectors)

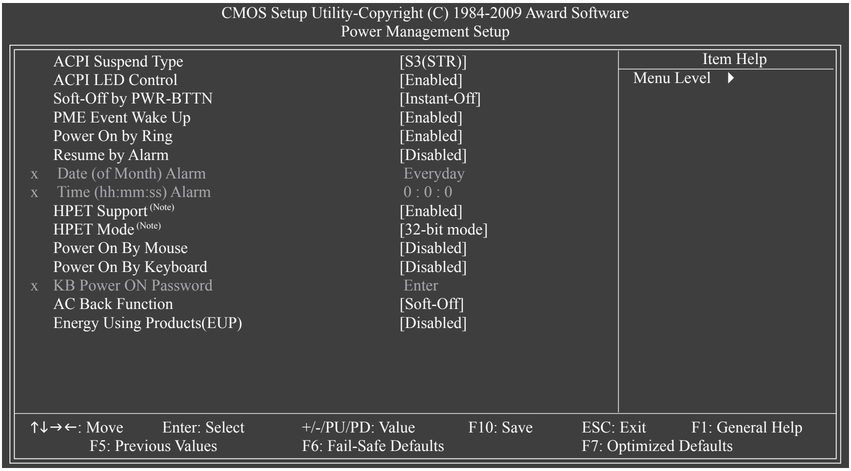
Allows you to decide whether to configure the SATA controller integrated in the Marvell 9128 chip to AHCI mode.

⏩ IDE	Configures the SATA controller to IDE mode. (Default)
⏩ AHCI	Configures the SATA controller to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug.

Onboard Serial Port 1

Enables or disables the first serial port and specifies its base I/O address and corresponding interrupt. Options are: Auto, 3F8/IRQ4 (default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Disabled.

2-7 Power Management Setup



```
                CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                                Power Management Setup

     ACPI Suspend Type                        [S3(STR)]          Item Help
     ACPI LED Control                         [Enabled]        Menu Level  ▶
     Soft-Off by PWR-BTTN                     [Instant-Off]
     PME Event Wake Up                        [Enabled]
     Power On by Ring                         [Enabled]
     Resume by Alarm                          [Disabled]
  x   Date (of Month) Alarm                    Everyday
  x   Time (hh:mm:ss) Alarm                    0 : 0 : 0
     HPET Support (Note)                      [Enabled]
     HPET Mode (Note)                         [32-bit mode]
     Power On By Mouse                        [Disabled]
     Power On By Keyboard                     [Disabled]
  x  KB Power ON Password                      Enter
     AC Back Function                         [Soft-Off]
     Energy Using Products(EUP)               [Disabled]

  ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
          F5: Previous Values    F6: Fail-Safe Defaults           F7: Optimized Defaults
```

☞ ACPI Suspend Type

Specifies the ACPI sleep state when the system enters suspend.

⏩ S1(POS)	Enables the system to enter the ACPI S1 (Power on Suspend) sleep state. In S1 sleep state, the system appears suspended and stays in a low power mode. The system can be resumed at any time.
⏩ S3(STR)	Enables the system to enter the ACPI S3 (Suspend to RAM) sleep state (default). In S3 sleep state, the system appears to be off and consumes less power than in the S1 state. When signaled by a wake-up device or event, the system resumes to its working state exactly where it was left off.

☞ ACPI LED Control

Enables or disables the onboard ACPI LEDs. **Enabled** allows the onboard ACPI LEDs to light up according to the system status. (Default: Enabled)

☞ Soft-Off by PWR-BTTN

Configures the way to turn off the computer in MS-DOS mode using the power button.

⏩ Instant-Off	Press the power button and then the system will be turned off instantly. (Default)
⏩ Delay 4 Sec.	Press and hold the power button for 4 seconds to turn off the system. If the power button is pressed for less than 4 seconds, the system will enter suspend mode.

☞ PME Event Wake Up

Allows the system to be awakened from an ACPI sleep state by a wake-up signal from a PCI or PCIe device. Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead. (Default: Enabled)

☞ Power On by Ring

Allows the system to be awakened from an ACPI sleep state by a wake-up signal from a modem that supports wake-up function. (Default: Enabled)

(Note) Supported on Windows Vista operating system only.

Resume by Alarm

Determines whether to power on the system at a desired time. (Default: Disabled)

If enabled, set the date and time as following:

- Date (of Month) Alarm: Turn on the system at a specific time on each day or on a specific day in a month.
- Time (hh: mm: ss) Alarm: Set the time at which the system will be powered on automatically.

Note: When using this function, avoid inadequate shutdown from the operating system or removal of the AC power, or the settings may not be effective.

HPET Support (Note)

Enables or disables High Precision Event Timer (HPET) for Windows Vista operating system. (Default: Enabled)

HPET Mode (Note)

Allows you to select the HPET mode for your Windows Vista operating system. Select **32-bit mode** when you install 32-bit Windows Vista; select **64-bit mode** when you install 64-bit Windows Vista. This item is configurable only if the **HPET Support** is set to **Enabled**. (Default: 32-bit mode)

Power On By Mouse

Allows the system to be turned on by a PS/2 mouse wake-up event.

Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead.

Disabled	Disables this function. (Default)
Double Click	Double click on left button on the PS/2 mouse to turn on the system.

Power On By Keyboard

Allows the system to be turned on by a PS/2 keyboard wake-up event.

Note: you need an ATX power supply providing at least 1A on the +5VSB lead.

Disabled	Disables this function. (Default)
Password	Set a password with 1~5 characters to turn on the system.
Keyboard 98	Press POWER button on the Windows 98 keyboard to turn on the system.

KB Power ON Password

Set the password when **Power On by Keyboard** is set to **Password**. Press <Enter> on this item and set a password with up to 5 characters and then press <Enter> to accept. To turn on the system, enter the password and press <Enter>.

Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings.

AC Back Function

Determines the state of the system after the return of power from an AC power loss.

Soft-Off	The system stays off upon the return of the AC power. (Default)
Full-On	The system is turned on upon the return of the AC power.
Memory	The system returns to its last known awake state upon the return of the AC power.

Energy Using Products (EUP)

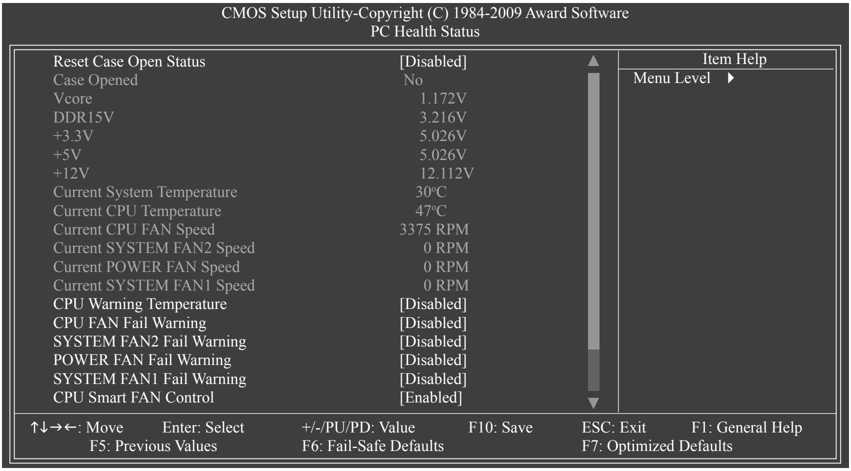
Determines whether to let the system consume less than 1W power in S5 (shutdown) state. (Default: Disabled)

Note: When this item is set to **Enabled**, the following four functions will become unavailable:

PME event wake up, power on by mouse, power on by keyboard, and wake on LAN.

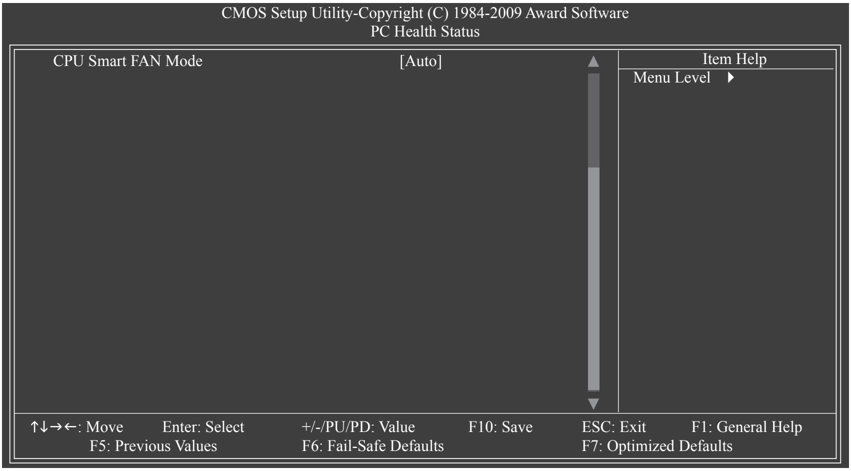
(Note) Supported on Windows Vista operating system only.

2-8 PC Health Status



```
CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
PC Health Status

Reset Case Open Status              [Disabled]
Case Opened                          No
Vcore                                   1.172V
DDR15V                                  3.216V
+3.3V                                   5.026V
+5V                                     5.026V
+12V                                    12.112V
Current System Temperature            30°C
Current CPU Temperature               47°C
Current CPU FAN Speed               3375 RPM
Current SYSTEM FAN2 Speed              0 RPM
Current POWER FAN Speed                0 RPM
Current SYSTEM FAN1 Speed              0 RPM
CPU Warning Temperature             [Disabled]
CPU FAN Fail Warning                [Disabled]
SYSTEM FAN2 Fail Warning            [Disabled]
POWER FAN Fail Warning              [Disabled]
SYSTEM FAN1 Fail Warning            [Disabled]
CPU Smart FAN Control               [Enabled]
```

Item Help
Menu Level ▸
↑↓→←: Move
Enter: Select
+/-/PU/PD: Value
F10: Save
ESC: Exit
F1: General Help
F5: Previous Values
F6: Fail-Safe Defaults
F7: Optimized Defaults



```
CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
PC Health Status

CPU Smart FAN Mode                  [Auto]
```

Item Help
Menu Level ▸
↑↓→←: Move
Enter: Select
+/-/PU/PD: Value
F10: Save
ESC: Exit
F1: General Help
F5: Previous Values
F6: Fail-Safe Defaults
F7: Optimized Defaults

☞ Reset Case Open Status

Keeps or clears the record of previous chassis intrusion status. **Enabled** clears the record of previous chassis intrusion status and the **Case Opened** field will show "No" at next boot. (Default: Disabled)

☞ Case Opened

Displays the detection status of the chassis intrusion detection device attached to the motherboard CI header. If the system chassis cover is removed, this field will show "Yes", otherwise it will show "No". To clear the chassis intrusion status record, set **Reset Case Open Status** to **Enabled**, save the settings to the CMOS, and then restart your system.

☞ Current Voltage(V) Vcore/DDR15V/+3.3V/+5V/+12V

Displays the current system voltages.

☞ Current System/CPU Temperature

Displays current system/CPU temperature.

☞ Current CPU/SYSTEM/POWER FAN Speed (RPM)

Displays current CPU/system/power fan speed.

☞ CPU Warning Temperature

Sets the warning threshold for CPU temperature. When CPU temperature exceeds the threshold, BIOS will emit warning sound. Options are: Disabled (default), 60°C/140°F, 70°C/158°F, 80°C/176°F, 90°C/194°F.

☞ CPU/SYSTEM/POWER FAN Fail Warning

Allows the system to emit warning sound if the CPU/system/power fan is not connected or fails. Check the fan condition or fan connection when this occurs. (Default: Disabled)

☞ CPU Smart FAN Control

Enables or disables the CPU fan speed control function. **Enabled** allows the CPU fan to run at different speed according to the CPU temperature. You can adjust the fan speed with EasyTune based on system requirements. If disabled, the CPU fan runs at full speed. (Default: Enabled)

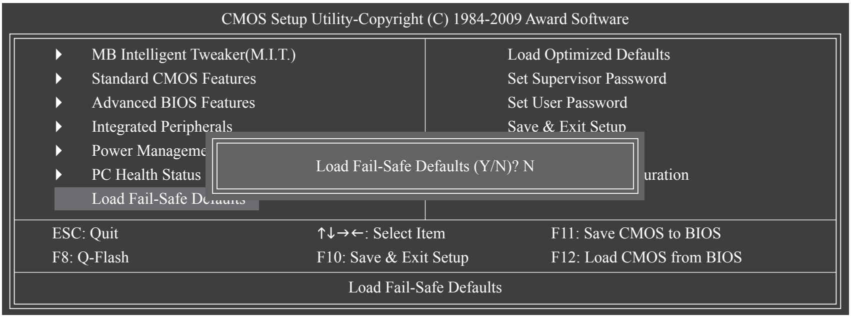
☞ CPU Smart FAN Control

Specifies how to control CPU fan speed. This item is configurable only if **CPU Smart FAN Control** is set to **Enabled**.

►► Auto	Lets the BIOS automatically detect the type of CPU fan installed and sets the optimal CPU fan control mode. (Default)
►► Voltage	Sets Voltage mode for a 3-pin CPU fan.
►► PWM	Sets PWM mode for a 4-pin CPU fan.

Note: The **Voltage** mode can be set for a 3-pin CPU fan or a 4-pin CPU fan. However, for a 4-pin CPU fan that is not designed following Intel PWM fan specifications, selecting **PWM** mode may not effectively reduce the fan speed.

2-9 Load Fail-Safe Defaults



CMOS Setup Utility-Copyright (C) 1984-2009 Award Software

▶ MB Intelligent Tweaker(M.I.T.)
▶ Standard CMOS Features
▶ Advanced BIOS Features
▶ Integrated Peripherals
▶ Power Manageme
▶ PC Health Status
Load Fail-Safe De

Load Optimized Defaults
Set Supervisor Password
Set User Password
Save & Exit Setup
uration

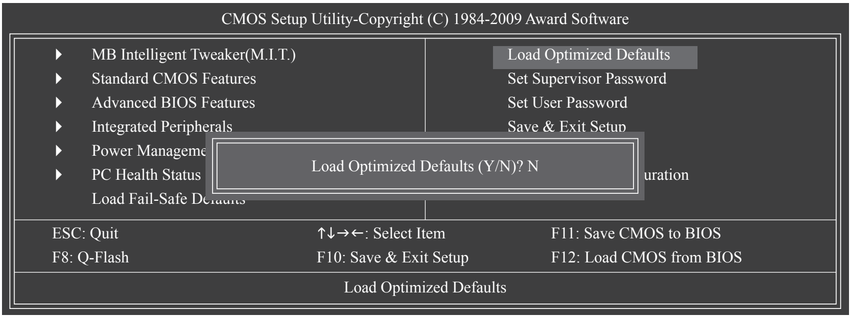
Load Fail-Safe Defaults (Y/N)? N

ESC: Quit ↑↓→←: Select Item F11: Save CMOS to BIOS
F8: Q-Flash F10: Save & Exit Setup F12: Load CMOS from BIOS

Load Fail-Safe Defaults

Press <Enter> on this item and then press the <Y> key to load the safest BIOS default settings.
In case system instability occurs, you may try to load Fail-Safe defaults, which are the safest and most stable BIOS settings for the motherboard.

2-10 Load Optimized Defaults



CMOS Setup Utility-Copyright (C) 1984-2009 Award Software

▶ MB Intelligent Tweaker(M.I.T.)
▶ Standard CMOS Features
▶ Advanced BIOS Features
▶ Integrated Peripherals
▶ Power Manageme
▶ PC Health Status
Load Fail-Safe De

Load Optimized Defaults
Set Supervisor Password
Set User Password
Save & Exit Setup
uration

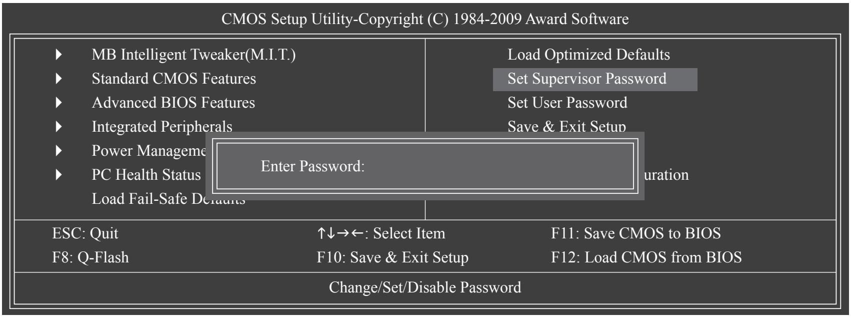
Load Optimized Defaults (Y/N)? N

ESC: Quit ↑↓→←: Select Item F11: Save CMOS to BIOS
F8: Q-Flash F10: Save & Exit Setup F12: Load CMOS from BIOS

Load Optimized Defaults

Press <Enter> on this item and then press the <Y> key to load the optimal BIOS default settings.
The BIOS defaults settings help the system to operate in optimum state. Always load the Optimized defaults after updating the BIOS or after clearing the CMOS values.

2-11 Set Supervisor/User Password


CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
MB Intelligent Tweaker(M.I.T.)
Standard CMOS Features
Advanced BIOS Features
Integrated Peripherals
Power Manageme
PC Health Status
Load Fail-Safe De
Load Optimized Defaults
Set Supervisor Password
Set User Password
Save & Exit Setup
uration
ESC: Quit
F8: Q-Flash
↑↓→←: Select Item
F10: Save & Exit Setup
F11: Save CMOS to BIOS
F12: Load CMOS from BIOS
Change/Set/Disable Password

Enter Password:

Press <Enter> on this item and type the password with up to 8 characters and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>.

The BIOS Setup program allows you to specify two separate passwords:

☞ **Supervisor Password**

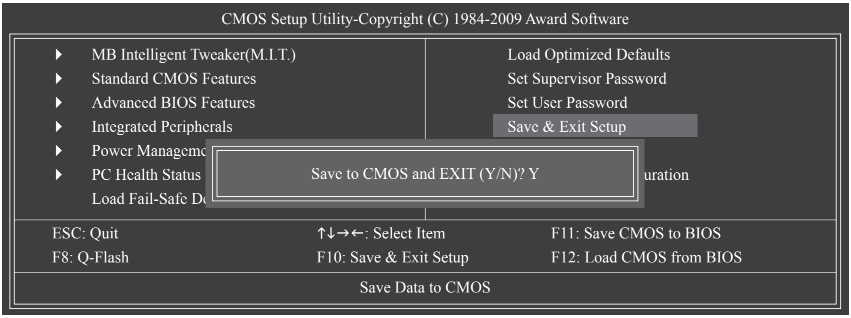
When a system password is set and the **Password Check** item in **Advanced BIOS Features** is set to **Setup**, you must enter the supervisor password for entering BIOS Setup and making BIOS changes.
When the **Password Check** item is set to **System**, you must enter the supervisor password (or user password) at system startup and when entering BIOS Setup.

☞ **User Password**

When the **Password Check** item is set to **System**, you must enter the supervisor password (or user password) at system startup to continue system boot. In BIOS Setup, you must enter the supervisor password if you wish to make changes to BIOS settings. The user password only allows you to view the BIOS settings but not to make changes.

To clear the password, press <Enter> on the password item and when requested for the password, press <Enter> again. The message "PASSWORD DISABLED" will appear, indicating the password has been cancelled.

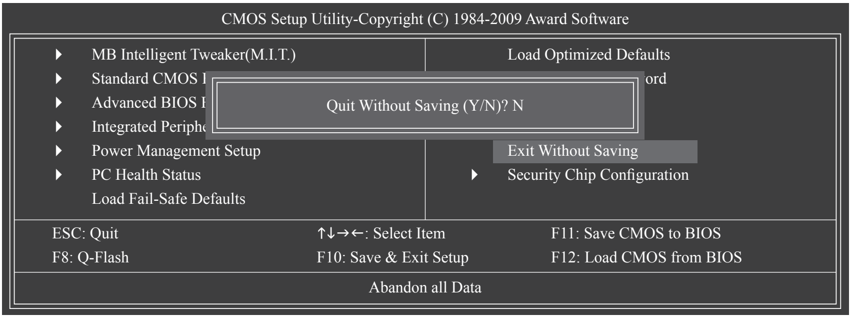
2-12 Save & Exit Setup



```
                CMOS Setup Utility-Copyright (C) 1984-2009 Award Software

  ▶  MB Intelligent Tweaker(M.I.T.)              Load Optimized Defaults
  ▶  Standard CMOS Features                      Set Supervisor Password
  ▶  Advanced BIOS Features                      Set User Password
  ▶  Integrated Peripherals                      Save & Exit Setup
  ▶  Power Manageme
  ▶  PC Health Status      Save to CMOS and EXIT (Y/N)? Y      uration
     Load Fail-Safe De

  ESC: Quit                  ↑↓→←: Select Item          F11: Save CMOS to BIOS
  F8: Q-Flash                F10: Save & Exit Setup     F12: Load CMOS from BIOS

                                 Save Data to CMOS
```

Press <Enter> on this item and press the <Y> key. This saves the changes to the CMOS and exits the BIOS Setup program. Press <N> or <Esc> to return to the BIOS Setup Main Menu.

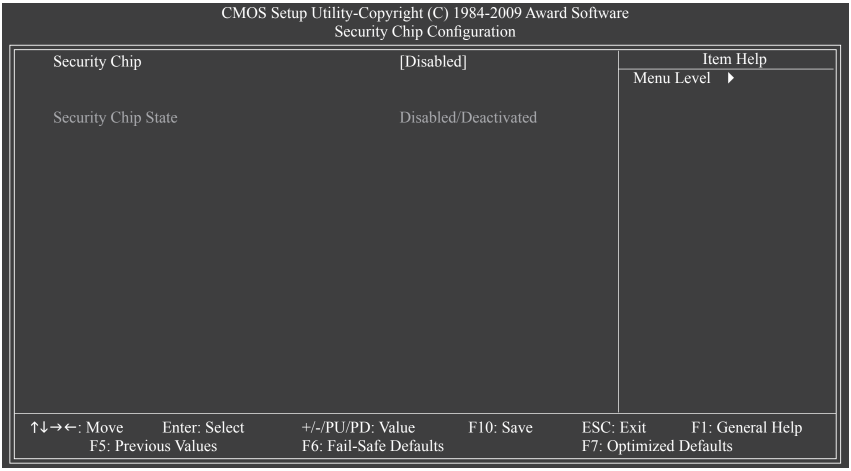
2-13 Exit Without Saving



```
                CMOS Setup Utility-Copyright (C) 1984-2009 Award Software

  ▶  MB Intelligent Tweaker(M.I.T.)              Load Optimized Defaults
  ▶  Standard CMOS F                                                   ord
  ▶  Advanced BIOS F        Quit Without Saving (Y/N)? N
  ▶  Integrated Periphe
  ▶  Power Management Setup                      Exit Without Saving
  ▶  PC Health Status                        ▶   Security Chip Configuration
     Load Fail-Safe Defaults

  ESC: Quit                  ↑↓→←: Select Item          F11: Save CMOS to BIOS
  F8: Q-Flash                F10: Save & Exit Setup     F12: Load CMOS from BIOS

                                 Abandon all Data
```

Press <Enter> on this item and press the <Y> key. This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS. Press <N> or <Esc> to return to the BIOS Setup Main Menu.

2-14 Security Chip Configuration



CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
Security Chip Configuration

```
Security Chip                        [Disabled]

Security Chip State                  Disabled/Deactivated
```

Item Help
Menu Level ▶
↑↓→←: Move
Enter: Select
+/-/PU/PD: Value
F10: Save
ESC: Exit
F1: General Help
F5: Previous Values
F6: Fail-Safe Defaults
F7: Optimized Defaults

☞ Security Chip

Enables or disables the security chip. It is recommended that you use this function with the Supervisor/ User password.

▶▶ Enabled/Activate	Enables the security chip and initializes the Security Platform.
▶▶ Disabled	Disables the security chip. (Default)

☞ Security Chip State

Displays the current settings in the security chip.

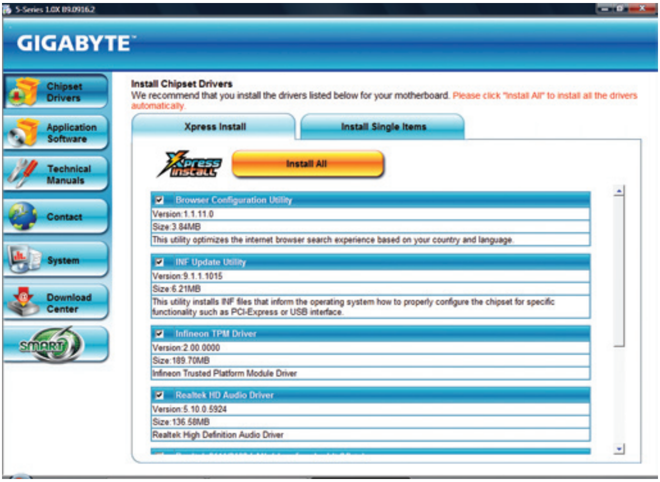
Chapter 3 Drivers Installation

- Before installing the drivers, first install the operating system.
- After installing the operating system, insert the motherboard driver disk into your optical drive. The driver Autorun screen is automatically displayed which looks like that shown in the screen shot below. (If the driver Autorun screen does not appear automatically, go to My Computer, double-click the optical drive and execute the **Run**.exe program.)

3-1 Installing Chipset Drivers

Now Loading Please wait...

After inserting the driver disk, "Xpress Install" will automatically scan your system and then list all the drivers that are recommended to install. You can click the **Install All** button and "Xpress Install" will install all the recommended drivers. Or click **Install Single Items** to manually select the drivers you wish to install.



Install Chipset Drivers

We recommend that you install the drivers listed below for your motherboard. Please click "Install All" to install all the drivers automatically.

☑ Browser Configuration Utility
Version:1.1.11.0
Size:3.84MB
This utility optimizes the internet browser search experience based on your country and language.

☑ INF Update Utility
Version:9.1.1.1015
Size:6.21MB
This utility installs INF files that inform the operating system how to properly configure the chipset for specific functionality such as PCI-Express or USB interface.

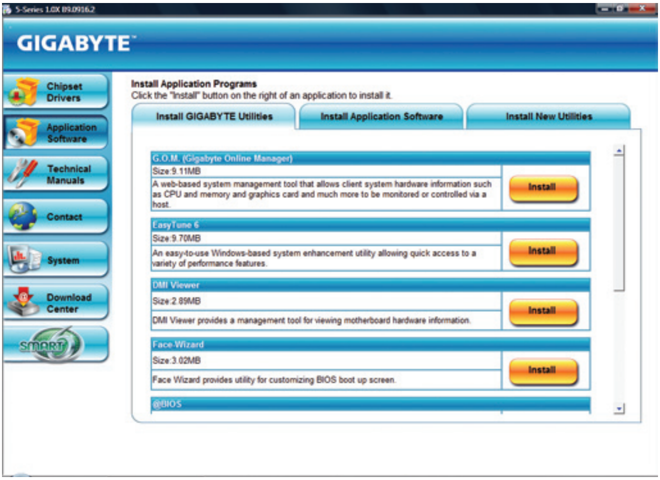
☑ Infineon TPM Driver
Version:2.00.0000
Size:189.70MB
Infineon Trusted Platform Module Driver

☑ Realtek HD Audio Driver
Version:5.10.0.5924
Size:136.58MB
Realtek High Definition Audio Driver

- Please ignore the popup dialog box(es) (e.g. the **Found New Hardware Wizard**) displayed when "Xpress Install" is installing the drivers. Failure to do so may affect the driver installation.
- Some device drivers will restart your system automatically during the driver installation. After the system restart, "Xpress Install" will continue to install other drivers.
- After the drivers are installed, follow the on-screen instructions to restart your system. You can install other applications included in the motherboard driver disk.
- For USB 2.0 driver support under the Windows XP operating system, please install the Windows XP Service Pack 1 or later. After installing the SP1 (or later), if a question mark still exists in **Universal Serial Bus Controller** in **Device Manager**, please remove the question mark (by right-clicking your mouse and select **Uninstall**) and restart the system. (The system will then autodetect and install the USB 2.0 driver.)

3-2 Application Software

This page displays all the utilities and applications that GIGABYTE develops and some free software. You can click the **Install** button on the right of an item to install it.


5-Series 1.0X 09.0916.2
GIGABYTE
Chipset Drivers
Application Software
Technical Manuals
Contact
System
Download Center
SMART
Install GIGABYTE Utilities
Install Application Software
Install New Utilities
Install
Install
Install
Install

Install Application Programs

Click the "Install" button on the right of an application to install it.

G.O.M. (Gigabyte Online Manager)

Size:9.11MB

A web-based system management tool that allows client system hardware information such as CPU and memory and graphics card and much more to be monitored or controlled via a host.

EasyTune 6

Size:9.70MB

An easy-to-use Windows-based system enhancement utility allowing quick access to a variety of performance features.

DMI Viewer

Size:2.89MB

DMI Viewer provides a management tool for viewing motherboard hardware information.

Face-Wizard

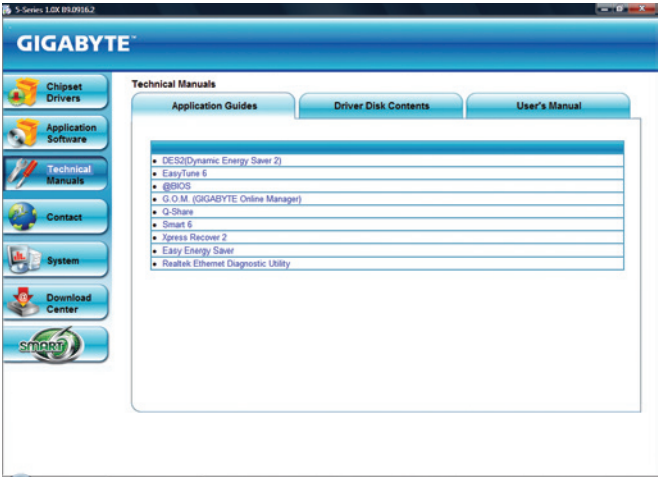
Size:3.02MB

Face Wizard provides utility for customizing BIOS boot up screen.

@BIOS

3-3 Technical Manuals

This page provides GIGABYTE's application guides, content descriptions for this driver disk, and the motherboard manuals.

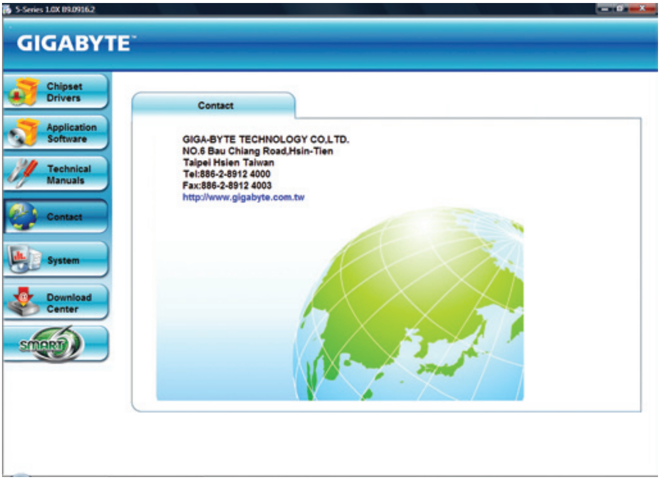

5-Series 1.0X 09.0916.2
GIGABYTE
Chipset Drivers
Application Software
Technical Manuals
Contact
System
Download Center
SMART
Application Guides
Driver Disk Contents
User's Manual

Technical Manuals

- DES2(Dynamic Energy Saver 2)
- EasyTune 6
- @BIOS
- G.O.M. (GIGABYTE Online Manager)
- Q-Share
- Smart 6
- Xpress Recover 2
- Easy Energy Saver
- Realtek Ethernet Diagnostic Utility

3-4 Contact

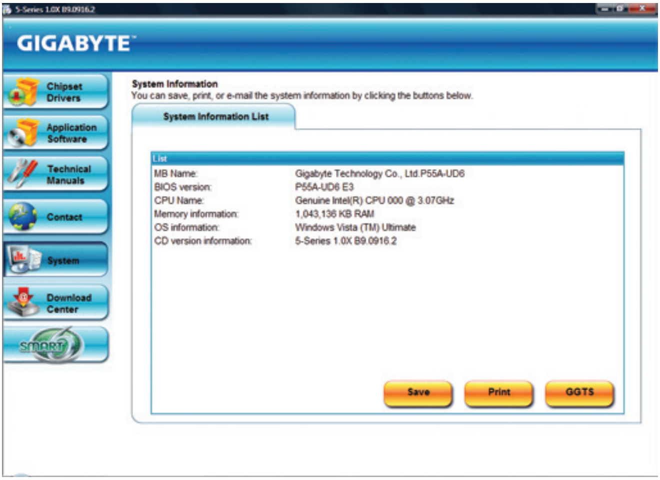
For the detailed contact information of the GIGABYTE Taiwan headquarter or worldwide branch offices, click the URL on this page to link to the GIGABYTE website.


5-Series 1.0X B9.0916.2
GIGABYTE
Chipset Drivers
Application Software
Technical Manuals
Contact
System
Download Center
SMART
Contact

GIGA-BYTE TECHNOLOGY CO.,LTD.
NO.6 Bau Chiang Road,Hsin-Tien
Taipei Hsien Taiwan
Tel:886-2-8912 4000
Fax:886-2-8912 4003
http://www.gigabyte.com.tw

3-5 System

This page provides the basic system information.


5-Series 1.0X B9.0916.2
GIGABYTE
Chipset Drivers
Application Software
Technical Manuals
Contact
System
Download Center
SMART
System Information List
List
Save
Print
GGTS

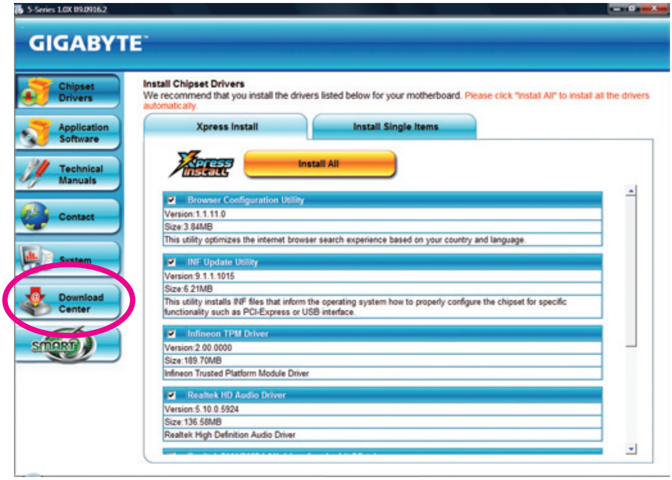
System Information

You can save, print, or e-mail the system information by clicking the buttons below.

MB Name:	Gigabyte Technology Co., Ltd.P55A-UD6
BIOS version:	P55A-UD6 E3
CPU Name:	Genuine Intel(R) CPU 000 @ 3.07GHz
Memory information:	1,043,136 KB RAM
OS information:	Windows Vista (TM) Ultimate
CD version information:	5-Series 1.0X B9.0916.2

3-6 Download Center

To update the BIOS, drivers, or applications, click the **Download Center** button to link to the GIGABYTE website. The latest version of the BIOS, drivers, or applications will be displayed.


5-Series 1.0X B9.0916.2
GIGABYTE
Chipset Drivers
Application Software
Technical Manuals
Contact
System
Download Center
SMART
Xpress Install
Install Single Items
Xpress install
Install All

Install Chipset Drivers
We recommend that you install the drivers listed below for your motherboard. Please click "Install All" to install all the drivers automatically.

☑ Browser Configuration Utility
Version:1.1.11.0
Size:3.84MB
This utility optimizes the internet browser search experience based on your country and language.

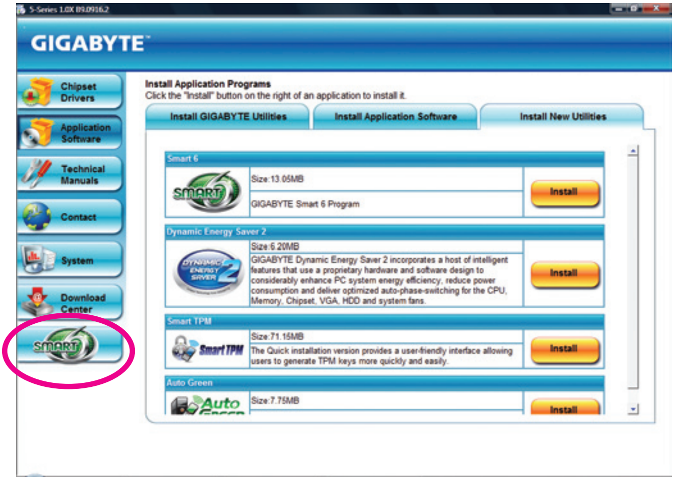
☑ INF Update Utility
Version:9.1.1.1015
Size:6.21MB
This utility installs INF files that inform the operating system how to properly configure the chipset for specific functionality such as PCI-Express or USB interface.

☑ Infineon TPM Driver
Version:2.00.0000
Size:189.70MB
Infineon Trusted Platform Module Driver

☑ Realtek HD Audio Driver
Version:5.10.0.5924
Size:136.58MB
Realtek High Definition Audio Driver

3-7 New Utilities

This page provides a quick link to GIGABYTE's lately developed utilities for users to install. You can click the **Install** button on the right of an item to install it.


5-Series 1.0X B9.0916.2
GIGABYTE
Chipset Drivers
Application Software
Technical Manuals
Contact
System
Download Center
SMART
Install GIGABYTE Utilities
Install Application Software
Install New Utilities
Install
Install
Install
Install

Install Application Programs
Click the "Install" button on the right of an application to install it.

Smart 6
Size:13.05MB
GIGABYTE Smart 6 Program

Dynamic Energy Saver 2
Size:6.20MB
GIGABYTE Dynamic Energy Saver 2 incorporates a host of intelligent features that use a proprietary hardware and software design to considerably enhance PC system energy efficiency, reduce power consumption and deliver optimized auto-phase-switching for the CPU, Memory, Chipset, VGA, HDD and system fans.

Smart TPM
Size:71.15MB
The Quick installation version provides a user-friendly interface allowing users to generate TPM keys more quickly and easily.

Auto Green
Size:7.75MB

Chapter 4 Unique Features

4-1 Xpress Recovery2

Xpress Recovery2 is a utility that allows you to quickly compress and back up your system data and perform restoration of it. Supporting NTFS, FAT32, and FAT16 file systems, Xpress Recovery2 can back up data on PATA and SATA hard drives and restore it.

Before You Begin:

- Xpress Recovery2 will check the first physical hard drive(Note) for the operating system. Xpress Recovery2 can only back up/restore the first physical hard drive that has the operating system installed.
- As Xpress Recovery2 will save the backup file at the end of the hard drive, make sure to leave enough unallocated space in advanced (10 GB or more is recommended; actual size requirements vary, depending on the amount of data).
- It is recommended to back up your system soon after the operating system and drivers are installed.
- The amount of data and hard drive access speed may affect the speed at which the data is backed up/restored.
- It takes longer to back up a hard drive than to restore it.

System Requirements:

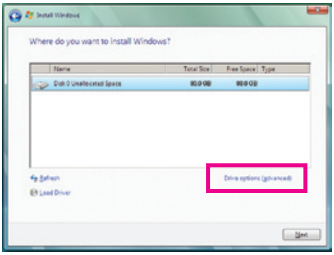
- At least 512 MB of system memory
- VESA compatible graphics card
- Windows XP with SP1 or later, Windows Vista

- Xpress Recovery and Xpress Recovery2 are different utilities. For example, a backup file created with Xpress Recovery cannot be restored using Xpress Recovery2.
- USB hard drives are not supported.
- Hard drives in RAID/AHCI mode are not supported.

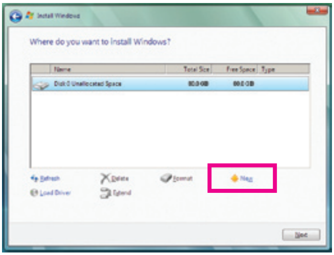
Installation and Configuration:

Turn on your system to boot from the Windows Vista setup disk.

A. Installing Windows Vista and Partitioning the Hard Drive

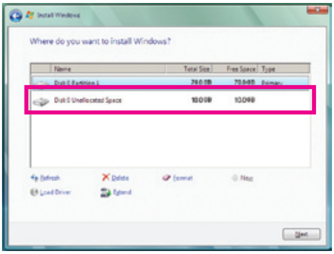

Install Windows
Where do you want to install Windows?
Name
Total Size
Free Space
Type
Disk 0 Unallocated Space
Refresh
Load Driver
Drive options (advanced)
Next

Step 1:
Click **Drive options**.


Install Windows
Where do you want to install Windows?
Name
Total Size
Free Space
Type
Disk 0 Unallocated Space
Refresh
Delete
Format
New
Load Driver
Extend
Next

Step 2:
Click **New**.

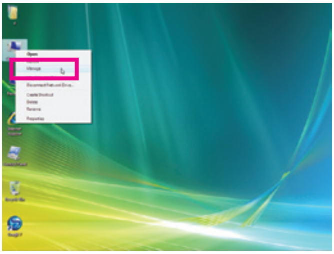
(Note) Xpress Recovery2 checks the first physical hard drive in the following sequence: The first PATA IDE connector, the second PATA IDE connector, the first SATA connector, the second SATA connector and so forth. For example, when hard drives are attached to the first IDE and the first SATA connectors, the hard drive on the first IDE connector is the first physical drive. When hard drives are attached to the first and second SATA connectors, the hard drive on the first SATA connector is the first physical drive.



Where do you want to install Windows?

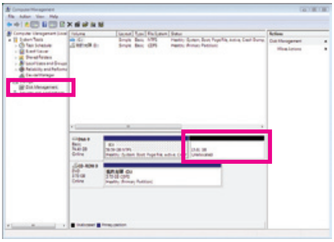
Step 3:

When partitioning your hard drive, make sure to leave unallocated space (10 GB or more is recommended; actual size requirements vary, depending on the amount of data) and begin the installation of the operating system.



Step 4:

After the operating system is installed, right-click the **Computer** icon on your desktop and select **Manage**. Go to **Disk Management** to check disk allocation.



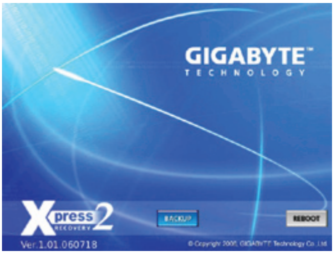
Step 5:

Xpress Recovery2 will save the backup file to the unallocated space (black stripe along the top). Please note that if there is no enough unallocated space, Xpress Recovery2 cannot save the backup file.

B. Accessing Xpress Recovery2

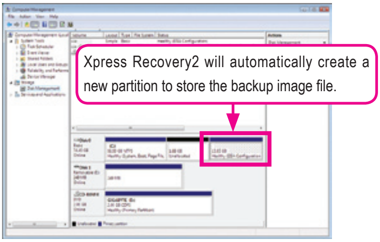
1. Boot from the motherboard driver disk to access Xpress Recovery2 for the first time. When you see the following message: `Press any key to startup Xpress Recovery2`, press any key to enter Xpress Recovery2.
2. After you use the backup function in Xpress Recovery2 for the first time, Xpress Recovery2 will stay permanent in your hard drive. If you wish to enter Xpress Recovery2 later, simply press <F9> during the POST.

C. Using the Backup Function in Xpress Recovery2



Step 1:

Select **BACKUP** to start backing up your hard drive data.

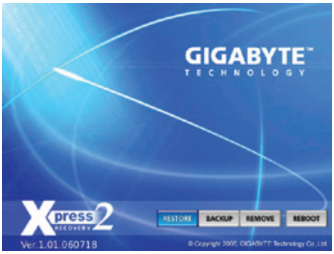


Xpress Recovery2 will automatically create a new partition to store the backup image file.

Step 2:

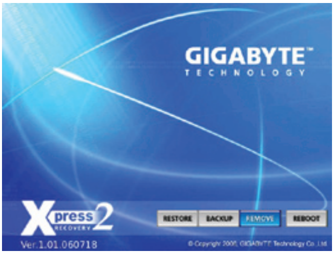
When finished, go to **Disk Management** to check disk allocation.

D. Using the Restore Function in Xpress Recovery2


GIGABYTE
TECHNOLOGY
Xpress RECOVERY 2
RESTORE
BACKUP
REMOVE
REBOOT
Ver.1.01.060718
© Copyright 2005, GIGABYTE Technology Co., Ltd.

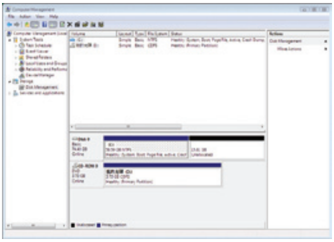
Select **RESTORE** to restore the backup to your hard drive in case the system breaks down. The **RESTORE** option will not be present if no backup is created before.

E. Removing the Backup


GIGABYTE
TECHNOLOGY
Xpress RECOVERY 2
RESTORE
BACKUP
REMOVE
REBOOT
Ver.1.01.060718
© Copyright 2005, GIGABYTE Technology Co., Ltd.

Step 1:

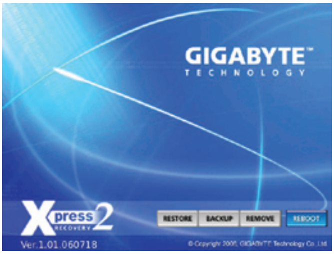
If you wish to remove the backup file, select **REMOVE**.



Step 2:

After the backup file is removed, no backup image file will be present in **Disk Management** and hard drive space will be freed up.

F. Exiting Xpress Recovery2


GIGABYTE
TECHNOLOGY
Xpress RECOVERY 2
RESTORE
BACKUP
REMOVE
REBOOT
Ver.1.01.060718
© Copyright 2005, GIGABYTE Technology Co., Ltd.

Select **REBOOT** to exit Xpress Recovery2.

4-2 BIOS Update Utilities

GIGABYTE motherboards provide two unique BIOS update tools, Q-Flash™ and @BIOS™. GIGABYTE Q-Flash and @BIOS are easy-to-use and allow you to update the BIOS without the need to enter MS-DOS mode. Additionally, this motherboard features the DualBIOS™ design, which enhances protection for the safety and stability of your computer by adding one more physical BIOS chip.

What is DualBIOS™?

Motherboards that support DualBIOS have two BIOS onboard, a main BIOS and a backup BIOS. Normally, the system works on the main BIOS. However, if the main BIOS is corrupted or damaged, the backup BIOS will take over on the next system boot and copy the BIOS file to the main BIOS to ensure normal system operation. For the sake of system safety, users cannot update the backup BIOS manually.

What is Q-Flash™?

With Q-Flash you can update the system BIOS without having to enter operating systems like MS-DOS or Window first. Embedded in the BIOS, the Q-Flash tool frees you from the hassles of going through complicated BIOS flashing process.

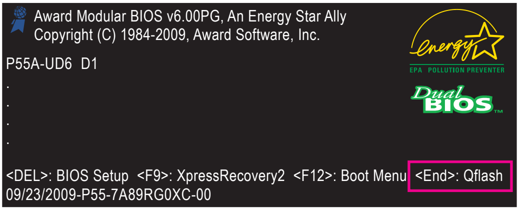
What is @BIOS™?

@BIOS allows you to update the system BIOS while in the Windows environment. @BIOS will download the latest BIOS file from the nearest @BIOS server site and update the BIOS.

4-2-1 Updating the BIOS with the Q-Flash Utility

A. Before You Begin

1. From GIGABYTE's website, download the latest compressed BIOS update file that matches your motherboard model.
2. Extract the file and save the new BIOS file (e.g. p55aud6.f1) to your floppy disk, USB flash drive, or hard drive. Note: The USB flash drive or hard drive must use FAT32/16/12 file system.
3. Restart the system. During the POST, press the <End> key to enter Q-Flash. Note: You can access Q-Flash by either pressing the <End> key during the POST or pressing the <F8> key in BIOS Setup. However, if the BIOS update file is saved to a hard drive in RAID/AHCI mode or a hard drive attached to an independent IDE/SATA controller, use the <End> key during the POST to access Q-Flash.



```
Award Modular BIOS v6.00PG, An Energy Star Ally
Copyright (C) 1984-2009, Award Software, Inc.

P55A-UD6  D1
.
.
.
.

<DEL>: BIOS Setup  <F9>: XpressRecovery2  <F12>: Boot Menu  <End>: Qflash
09/23/2009-P55-7A89RG0XC-00
```

Because BIOS flashing is potentially risky, please do it with caution. Inadequate BIOS flashing may result in system malfunction.

B. Updating the BIOS

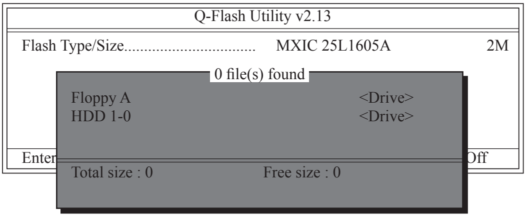
When updating the BIOS, choose the location where the BIOS file is saved. The following procedure assumes that you save the BIOS file to a floppy disk.

Step 1:

1. Insert the floppy disk containing the BIOS file into the floppy disk drive. In the main menu of Q-Flash, use the up or down arrow key to select **Update BIOS from Drive** and press <Enter>.

- The **Save Main BIOS to Drive** option allows you to save the current BIOS file.
- Q-Flash only supports USB flash drive or hard drives using FAT32/16/12 file system.
- If the BIOS update file is saved to a hard drive in RAID/AHCI mode or a hard drive attached to an independent IDE/SATA controller, use the <End> key during the POST to access Q-Flash.

2. Select **Floppy A** and press <Enter>.



```
                     Q-Flash Utility v2.13
 Flash Type/Size.................     MXIC 25L1605A            2M
                         0 file(s) found
       Floppy A                                    <Drive>
       HDD 1-0                                     <Drive>
 Enter                                                          Off
       Total size : 0              Free size : 0
```

3. Select the BIOS update file and press <Enter>.

Make sure the BIOS update file matches your motherboard model.

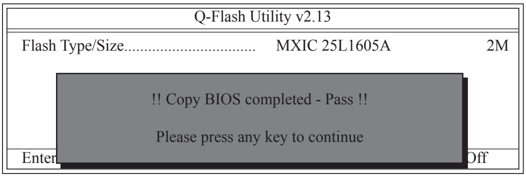
Step 2:

The process of the system reading the BIOS file from the floppy disk is displayed on the screen. When the message "Are you sure to update BIOS?" appears, press <Enter> to begin the BIOS update. The monitor will display the update process.

- **Do not turn off or restart the system when the system is reading/updating the BIOS.**
- **Do not remove the floppy disk, USB flash drive, or hard drive when the system is updating the BIOS.**

Step 3:

When the update process is complete, press any key to return to the main menu.



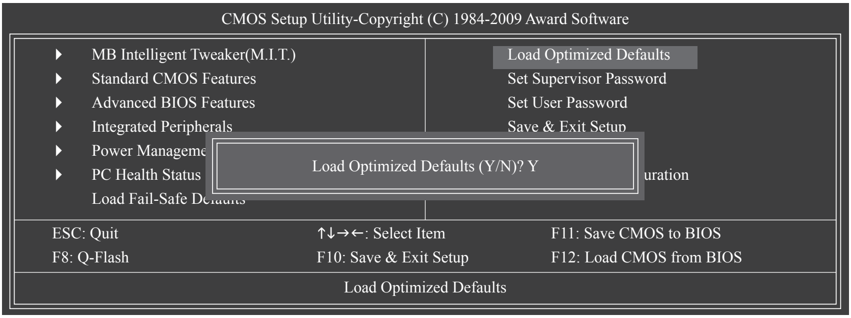
```
                     Q-Flash Utility v2.13
 Flash Type/Size.................     MXIC 25L1605A            2M

                   !! Copy BIOS completed - Pass !!

                   Please press any key to continue
 Enter                                                          Off
```

Step 4:

Press <Esc> and then <Enter> to exit Q-Flash and reboot the system. As the system boots, you should see the new BIOS version is present on the POST screen.

Step 5:

During the POST, press <Delete> to enter BIOS Setup. Select **Load Optimized Defaults** and press <Enter> to load BIOS defaults. System will re-detect all peripheral devices after a BIOS update, so we recommend that you reload BIOS defaults.



```
CMOS Setup Utility-Copyright (C) 1984-2009 Award Software

 ▶ MB Intelligent Tweaker(M.I.T.)        Load Optimized Defaults
 ▶ Standard CMOS Features                Set Supervisor Password
 ▶ Advanced BIOS Features                Set User Password
 ▶ Integrated Peripherals                Save & Exit Setup
 ▶ Power Manageme
 ▶ PC Health Status   Load Optimized Defaults (Y/N)? Y   uration
   Load Fail-Safe De

ESC: Quit         ↑↓→←: Select Item        F11: Save CMOS to BIOS
F8: Q-Flash       F10: Save & Exit Setup   F12: Load CMOS from BIOS

                  Load Optimized Defaults
```

Press <Y> to load BIOS defaults

Step 6:

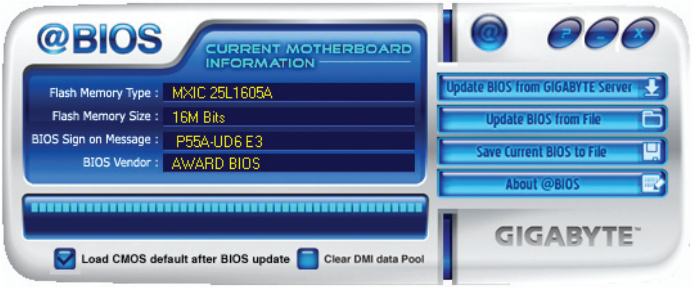
Select **Save & Exit Setup** and then press <Y> to save settings to CMOS and exit BIOS Setup. The procedure is complete after the system restarts.

4-2-2 Updating the BIOS with the @BIOS Utility

A. Before You Begin

1. In Windows, close all applications and TSR (Terminate and Stay Resident) programs. This helps prevent unexpected failures when performing a BIOS update.
2. During the BIOS update process, ensure the Internet connection is stable and do NOT interrupt the Internet connection (for example, avoid a power loss or switching off the Internet). Failure to do so may result in a corrupted BIOS or a system that is unable to start.
3. Do not use the G.O.M. (GIGABYTE Online Management) function when using @BIOS.
4. GIGABYTE product warranty does not cover any BIOS damage or system failure resulting from an inadequate BIOS flashing.

B. Using @BIOS


@BIOS
CURRENT MOTHERBOARD INFORMATION
Update BIOS from GIGABYTE Server
Update BIOS from File
Save Current BIOS to File
About @BIOS
GIGABYTE

Flash Memory Type : MXIC 25L1605A
Flash Memory Size : 16M Bits
BIOS Sign on Message : P55A-UD6 E3
BIOS Vendor : AWARD BIOS

☑ Load CMOS default after BIOS update ☐ Clear DMI data Pool

1. Update BIOS from GIGABYTE Server **Update the BIOS Using the Internet Update Function:**

   Click **Update BIOS from GIGABYTE Server**, select the @BIOS server site closest to your location and then download the BIOS file that matches your motherboard model. Follow the on-screen instructions to complete.

   If the BIOS update file for your motherboard is not present on the @BIOS server site, please manually download the BIOS update file from GIGABYTE's website and follow the instructions in "Update the BIOS without Using the Internet Update Function" below.

2. Update BIOS from File **Update the BIOS without Using the Internet Update Function:**

   Click **Update BIOS from File**, then select the location where you save the BIOS update file obtained from the Internet or through other source. Follow the on-screen instructions to complete.

3. Save Current BIOS to File **Save the Current BIOS File:**

   Click **Save Current BIOS to File** to save the current BIOS file.

4. ☑ Load CMOS default after BIOS update **Load BIOS Defaults after BIOS Update:**

   Select the **Load CMOS default after BIOS update** check box and then the system will automatically load BIOS defaults after BIOS update and after the system restarts.

C. After Updating the BIOS

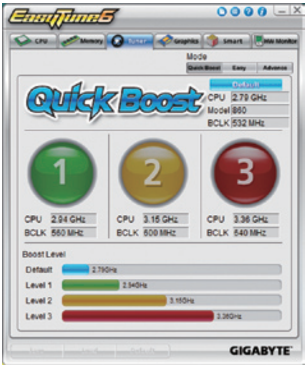
Restart your system after updating the BIOS.

Make sure that the BIOS file to be flashed matches your motherboard model. Updating the BIOS with an incorrect BIOS file could cause your system not to boot.

4-3 EasyTune 6

GIGABYTE's EasyTune 6 is a simple and easy-to-use interface that allows users to fine-tune their system settings or do overclock/overvoltage in Windows environment. The user-friendly EasyTune 6 interface also includes tabbed pages for CPU and memory information, letting users read their system-related information without the need to install additional software.

The EasyTune 6 Interface


EasyTune6
CPU
Memory
Tuner
Graphics
Smart
HW Monitor
Mode
Quick Boost
Easy
Advance
Quick Boost
Default
CPU 2.79 GHz
Model 860
BCLK 532 MHz
1
2
3
CPU 2.94 GHz
BCLK 560 MHz
CPU 3.15 GHz
BCLK 600 MHz
CPU 3.36 GHz
BCLK 640 MHz
Boost Level
Default 2.79GHz
Level 1 2.94GHz
Level 2 3.15GHz
Level 3 3.36GHz
GIGABYTE

Tabs Information

Tab	Function
CPU	The **CPU** tab provides information on the installed CPU and motherboard.
Memory	The **Memory** tab provides information on the installed memory module(s). You can select memory module on a specific slot to see its information.
Tuner	The **Tuner** tab allows you to change system clock settings and voltages. • **Quick Boost mode** provides you with 3 levels of CPU frequency/base clock to choose to achieve desired system performance. (Note) After making changes in **Quick Boost mode** or clicking **Default** to restore to default values, be sure to restart your system for these changes to take effect. • **Easy mode** allows you to adjust the CPU base clock only. • **Advanced mode** allows you to individually change system clock settings and voltages settings using the sliders. • **Save** allows you to save the current settings to a new profile (.txt file). • **Load** allows you to load previous settings from a profile. After making changes in **Easy mode**/**Advanced mode**, be sure to click **Set** for these changes to take effect or click **Default** to restore to default values.
Graphics	The **Graphics** tab allows you to change the core clock and memory clock for your ATI or NVIDIA graphics card.
Smart	The **Smart** tab allows you to specify a C.I.A.2 level and a Smart Fan mode. **Smart Fan Advance Mode** allows the CPU fan speed to be changed linearly based on the CPU temperature thresholds you set.
HW Monitor	The **HW Monitor** tab allows you to monitor hardware temperature, voltage and fan speed and set temperature/fan speed alarm. You can choose the alert sound from the buzzer or use your own sound file (.wav file).

(Note) Due to the hardware limitation, you must install a DDR3 1066 MHz memory module(s) (or above) to enable support for Quick Boost.

Available functions in EasyTune 6 may differ by motherboard model. Grayed-out area(s) indicates that the item is not configurable or the function is not supported.

Incorrectly doing overclock/overvoltage may result in damage to the hardware components such as CPU, chipset, and memory and reduce the useful life of these components. Before you do the overclock/overvoltage, make sure that you fully know each function of EasyTune 6, or system instability or other unexpected results may occur.

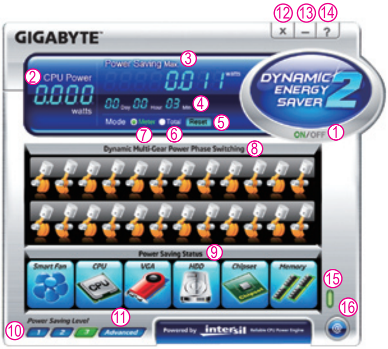
4-4 Dynamic Energy Saver™ 2

GIGABYTE Dynamic Energy Saver™ 2 (Note 1) is a revolutionary technology that delivers unparalleled power savings with a click of the button. Featuring an advanced proprietary hardware and software design, GIGABYTE Dynamic Energy Saver™ 2 is able to provide exceptional power savings and enhanced power efficiency without sacrificing computing performance.

The Dynamic Energy Saver™ 2 Interface

A. Meter Mode

In Meter Mode, GIGABYTE Dynamic Energy Saver™ 2 shows how much power they have saved in a set period of time.


⑫ ⑬ ⑭
x
–
?
GIGABYTE
③ Power Saving Max
② CPU Power
0.000
watts
0.011 watts
00 Day 00 Hour 03 Min ④
Mode ● Meter ○ Total Reset ⑤
⑦ ⑥
DYNAMIC ENERGY SAVER 2
ON/OFF ①
Dynamic Multi-Gear Power Phase Switching ⑧
Power Saving Status ⑨
Smart Fan
CPU
VGA
HDD
Chipset
Memory
⑮
⑯
Power Saving Level
⑩ 1 2 3
⑪ Advanced
Powered by intersil

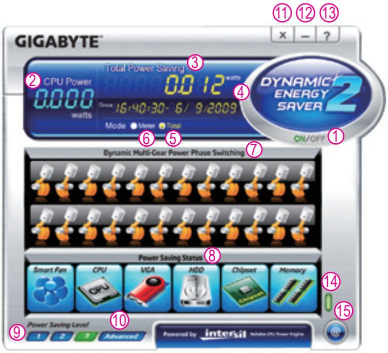
Meter Mode - Button Information Table

	Button Description
1	Dynamic Energy Saver On/Off Switch (Default: Off)
2	Current CPU Power Consumption
3	Power Saving (Calculate power savings based on time)
4	Meter Time
5	Meter/Timer Reset Switch
6	Total Mode Switch
7	Meter Mode Switch
8	Dynamic Power Phase Status
9	Power Saving Status (Icons of the devices currently in power-saving mode will light on)
10	3-Level Power Saving Switch (Default:1) (Note 2)
11	Advanced Settings
12	Close (Application will enter Stealth Mode)
13	Minimize (Application will continue to run in taskbar)
14	INFO/Help
15	Motherboard Phase LED On/Off Switch (Default: On)
16	Live Utility Update (Check for the latest utility version)

- The above data is for reference only. Actual performance may vary depending on motherboard model.
- CPU Power and Power Scores are for reference only. Actual results may vary based on testing method.

B. Total Mode

In Total Mode, users are able to see how much total power savings they have accumulated in a set period of time since activating Dynamic Energy Saver™ 2 for the first time (Note 3).


⑪ ⑫ ⑬
x
–
?
GIGABYTE
③
Total Power Saving
0.0 12
watts
② CPU Power
0.000
watts
④
Since 16:40:30- 6/ 9/2009
Mode ● Meter ● Total
⑥ ⑤
DYNAMIC ENERGY SAVER 2
ON/OFF ①
Dynamic Multi-Gear Power Phase Switching ⑦
Power Saving Status ⑧
Smart Fan
CPU
VGA
HDD
Chipset
Memory
⑭
⑮
⑩
Power Saving Level
⑨
1
2
3
Advanced
Powered by intersil

Total Mode - Button Information Table

	Button Description
1	Dynamic Energy Saver On/Off Switch (Default: Off)
2	Current CPU Power Consumption
3	Total Power Savings (Total power saving with Dynamic Energy Saver enabled) (Note 4)
4	Time/Date Dynamic Energy Saver Enabled
5	Total Mode Switch
6	Meter Mode Switch
7	Dynamic Power Phase Status
8	Power Saving Status (Icons of the devices currently in power-saving mode will light on)
9	3-Level Power Saving Switch (Default:1) (Note 2)
10	Advanced Settings
11	Close (Application will enter Stealth Mode)
12	Minimize (Application will continue to run in taskbar)
13	INFO/Help
14	Motherboard Phase LED On/Off Switch (Default: On)
15	Live Utility Update (Check for the latest utility version)

C. Stealth Mode

In Stealth Mode, the system continues to work with the user-defined power saving settings, even after the system is restarted. Re-enter the application only if you want to make any changes or completely close the application.

(Note 1) Before using the Dynamic Energy Saver™ 2 function, make sure the **CPU Enhanced Halt (C1E)** and **CPU EIST Function** items in the BIOS Setup program are set to **Enabled**.

(Note 2) 1: Smart FAN/CPU (default); 2: Smart FAN/CPU/VGA/HDD; 3: Smart FAN/CPU/VGA/HDD/Chipset/Memory.

(Note 3) The total amount of power saved will be recorded until re-activated when only the Dynamic Power Saver is under the enable status, and power savings meter is unable to reset to zero.

(Note 4) Dynamic Energy Saver Meter will automatically reset when the total power saving reaches 99999999 Watts.

4-5 Q-Share

Q-Share is an easy and convenient data sharing tool. After configuring your LAN connection settings and Q-Share, you are able to share your data with computers on the same network, making full use of Internet resources.

GIGABYTE
Q-Share
Ver.1.0

Directions for using Q-Share

After installing Q-Share from the motherboard driver disk, go to Start>All Programs>GIGABYTE>Q-Share.exe to launch the Q-Share tool. Find the **Q-Share** icon in the notification area and right-click on this icon to configure the data sharing settings.

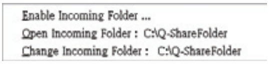

Enable Incoming Folder ...
Open Incoming Folder : C:\Q-ShareFolder
Change Incoming Folder : C:\Q-ShareFolder

Figure 1. Data Sharing Disabled

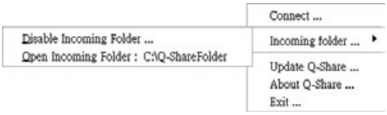

Disable Incoming Folder ...
Open Incoming Folder : C:\Q-ShareFolder
Connect ...
Incoming folder ...
Update Q-Share ...
About Q-Share ...
Exit ...

Figure 2. Data Sharing Enabled

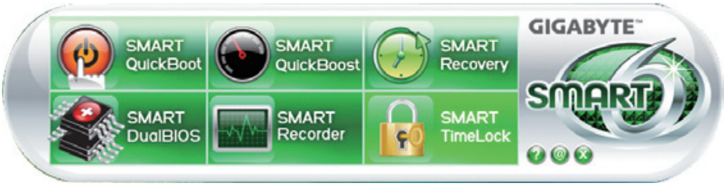
Options Descriptions

Option	Description
Connect ...	Displays the computers with data sharing enabled
Enable Incoming Folder ...	Enables data sharing
Disable Incoming Folder ...	Disables data sharing
Open Incoming Folder : C:\Q-ShareFolder	Accesses the shared data folder
Change Incoming Folder : C:\Q-ShareFolder	Changes the data folder to be shared (Note)
Update Q-Share ...	Updates Q-Share online
About Q-Share ...	Displays the current Q-Share version
Exit...	Exits Q-Share

(Note) This option is available only when data sharing is NOT enabled.

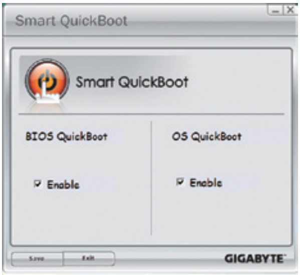
4-6 Smart 6™

GIGABYTE Smart 6™ (Note 1) is designed with user-friendliness in mind, and offers a combination of 6 innovative software utilities that provide easier and smarter PC system management. Smart 6™ allows you to speed up system performance, reduce boot-up time, manage a secure platform and recover specified files easily with a click of the mouse button.


SMART QuickBoot
SMART QuickBoost
SMART Recovery
SMART DualBIOS
SMART Recorder
SMART TimeLock
GIGABYTE
SMART 6

SMART QuickBoot

SMART QuickBoot speeds up the system boot-up process and shortens the waiting time for entering the operating system, delivering greater efficiency for daily use.


Smart QuickBoot
Smart QuickBoot
Save
Exit
GIGABYTE

BIOS QuickBoot ☑ Enable

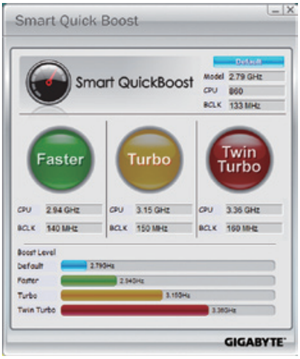
OS QuickBoot ☑ Enable

Instructions:

Select the **Enable** check box below the **BIOS QuickBoot** or **OS QuickBoot** item and then click **Save** to save the settings.

SMART QuickBoost

SMART QuickBoost features quick and effortless CPU overclocking for novice and experienced users alike; users simply click on one of the three levels of CPU performance enhancement, and SMART QuickBoost automatically adjusts CPU performance.


Smart Quick Boost
Smart QuickBoost
Default
Faster
Turbo
Twin Turbo
GIGABYTE

Model 2.79 GHz
CPU 860
BCLK 133 MHz

Faster	Turbo	Twin Turbo
CPU 2.94 GHz	CPU 3.15 GHz	CPU 3.36 GHz
BCLK 140 MHz	BCLK 150 MHz	BCLK 160 MHz

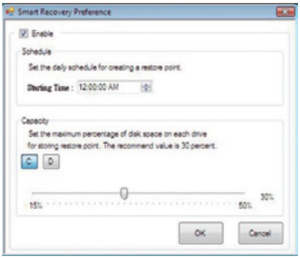
Boost Level
Default 2.79GHz
Faster 2.94GHz
Turbo 3.15GHz
Twin Turbo 3.36GHz

Instructions:

Select a CPU performance boost level and restart your computer for the changes to take effect.

SMART Recovery

With SMART Recovery, users can quickly create backups of changed data files (Note 2) or copy files from a specific backup on PATA and SATA hard drives (partitioned on NTFS file system) in Windows Vista.



☑ Enable

Schedule

Set the daily schedule for creating a restore point.

Starting Time : 12:00:00 AM

Capacity

Set the maximum percentage of disk space on each drive for storing restore point. The recommend value is 30 percent.

C D

15% 50% 30%

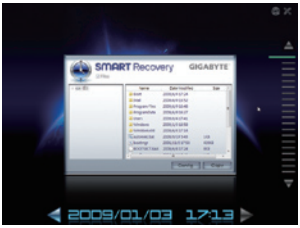
Instructions:

In the main menu, click the **Config** button to open the **Smart Recovery Preference** dialog box.

The **Smart Recovery Preference** dialog box:

Button	Function
Enable	Enables automatic daily backup (Note 3)
Schedule	Sets a daily backup schedule
Capacity	Sets the percentage of hard drive space used for saving backups (Note 4)

- The hard drive must have more than 1 GB of capacity.
- Each partition can accommodate up to 64 backups (the actual limit depends on the size of each partition). When this limit is reached, the oldest backup will be overwritten.



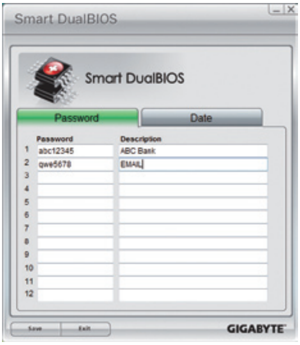
Instructions for copying files/folders from a backup:

To browse through your backups made at different time, select a backup time using the time scroll bar on the right or at the bottom of the screen. If you want to copy back a file/folder, select the file/folder you wish to copy and click the **Copy** button.

The files/folders listed on the screen are read-only so you cannot edit their contents.

SMART DualBIOS

SMART DualBIOS is a new feature that can record personal passwords and important dates, and remind users of the dates. It also stores the recorded data in the main and backup BIOS simultaneously, which can prevent loss of the data in case the system/hard drive fails.



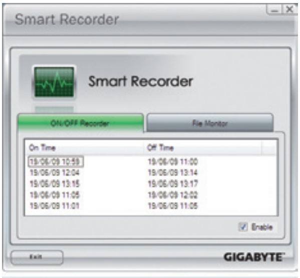
	Password	Description
1	abc12345	ABC Bank
2	qwe5678	EMAIL
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Instructions:

Enter the Smart 6™ password to launch the SMART DualBIOS utility. You can record personal passwords and important dates and set reminders of these dates. Click **Save** to save the settings and click **Exit** to exit.

SMART Recorder

SMART Recorder monitors and records the activities in a system such as the time when the computer was turned on/off or even when large data files were moved within the hard drive or copied to an external storage device (Note 5).


Smart Recorder
Smart Recorder
ON/OFF Recorder
File Monitor
☑ Enable
Exit
GIGABYTE

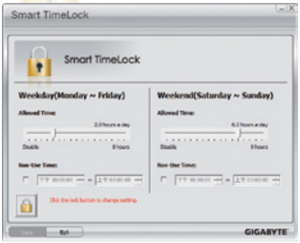
On Time	Off Time
19/06/09 10:59	19/06/09 11:00
19/06/09 12:04	19/06/09 13:14
19/06/09 13:15	19/06/09 13:17
19/06/09 11:05	19/06/09 12:02
19/06/09 11:01	19/06/09 11:05

Instructions:

Select the **Enable** check box at the bottom of the **ON/OFF Recorder** or **File Monitor** tab to enable the recording of system on/off time or files copying. Entering the Smart 6™ password is required before you make any changes to the previous settings.

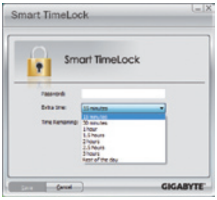
SMART TimeLock

SMART TimeLock allows users to effectively manage computer usage time with simple rules and options.


Smart TimeLock
Smart TimeLock
Weekday(Monday ~ Friday)
Allowed Time:
2.0 hours a day
Disable
8 hours
Non-Use Times:
Weekend(Saturday ~ Sunday)
Allowed Time:
6.0 hours a day
Disable
8 hours
Non-Use Times:
Click the lock button to change setting.
Save
Exit
GIGABYTE

Instructions (Note 6)**:**

Click the lock icon 🔒 on the bottom left corner and enter the Smart 6™ password. Set the time when a user can or cannot use your computer for weekdays and weekends. Click **Save** to save the settings and click **Exit** to exit.


Smart TimeLock
Smart TimeLock
Password:
Extra time:
Time Remaining:
Save
Cancel
GIGABYTE

The **Smart TimeLock** Alert:

An alert will appear 15 minutes and 1 minute prior to the default shutdown time. When the alert appears, you can enter the Smart 6™ password to extend the usage time or click **Cancel** to close the alert. If you respond **Cancel**, you will be requested to enter the password to extend the usage time again when the default shutdown time arrives, or the computer will shutdown right away.

(Note 1) When launching Smart 6™ for the first time, the system will request you to set up a password. This password is required when you activate SMART DualBIOS or when you want to make changes to the SMART Recorder or SMART TimeLock settings.

(Note 2) The changed data refers to the data that has been modified, deleted, or newly added since the last backup.

(Note 3) The system will make an automatic backup on changed data only once everyday. If the computer is turned on for a long time, the backup will be performed at the scheduled backup time. If the computer is turned off before the scheduled backup time, the backup will be performed on the next boot.

(Note 4) We recommend that you preserve at least 25 percent of the hard drive space to optimize the storage space for the backups. The backups of the changed data will be stored in the original partition of the data.

(Note 5) You will not be able to use the "Safely Remove Hardware" feature in the operating system with SMART Recorder enabled. To remove an external storage device, unplug it directly from your computer (please note that doing so may result in damage to the hardware device or loss of data).

(Note 6) You can set the User Password in the system BIOS Setup program to prevent the system time being changed by other users.

4-7 Smart TPM

GIGABYTE's unique Smart TPM (Trusted Platform Module) supports the industry's most advanced hardware-based data encryption. Smart TPM provides users with an easy-to-use software interface to create a portable user key using a Bluetooth cell phone or USB flash drive. Users can access/close their PSD data by simply connecting to the Bluetooth cell phone or plugging in the USB flash drive, without the hassles of complicated configurations. In addition, users can create more than one Bluetooth cell phone/USB flash drive key, so when they lost a key they still can access data.

- **After creating the password(s) and key(s) associated the TPM, be sure to store them in a secure location and back them up. Loss of the password(s) or the key(s) will render the files encrypted via the TPM unable to be cracked or read.**
- **Though the TPM delivers the latest data security technology, it does not guarantee data integrity or provide hardware protection. GIGABYTE is not liable for loss of encrypted data as a result of hardware damage.**

A. Before installing Smart TPM, follow the steps below in sequence:

Step 1:

As the computer starts, enter the BIOS Setup program. Go to the **Security Chip Configuration** menu and set **Security Chip** to **Enabled/Activate**. It's recommended that you use the **Clear Security Chip** setting (press <Ctrl> + <F1> in the BIOS main menu to display this setting) to clear the TPM chip. Save changes and then restart your computer.

- **Previously encrypted files will become inaccessible after the TPM chip is cleared. Be sure to back up the encrypted files first.**
- **To prevent the TPM settings being cleared by other users, we recommend that you set the User Password in the BIOS Setup program.**

Step 2:

Install the Infineon TPM driver from the motherboard driver disk (select **Infineon TPM Driver**).

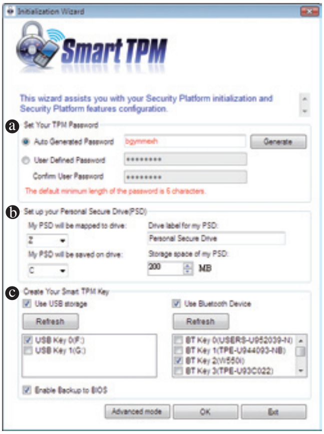
Step 3:

Install the Smart TPM utility from the motherboard driver disk. (Click the tab at the bottom of the left pane of the autorun screen and you'll be directed to the **Install New Utilities** menu. Click the **Install** button on the right of Smart TPM to install it.)

B. Instructions for using Smart TPM:

1. After configuring the above settings and restarting your computer, the Infineon Security Platform icon, which indicates that the Infineon Security Platform is not yet initialized, will appear in the notification area. Double-click the icon or right-click the Smart TPM icon and select **Initialization Wizard** to access Smart TPM.

You can select **Advanced mode** to enter the Infineon Security Platform Settings Tool to configure advanced settings. (You have to at least set up a Personal Secure Drive (PSD). Refer to the Infineon Security Platform Help file to see how to set up the PSD.)



This wizard assists you with your Security Platform initialization and Security Platform features configuration.

ⓐ Set Your TPM Password

● Auto Generated Password: bgymmesh

○ User Defined Password: ••••••••

Confirm User Password: ••••••••

The default minimum length of the password is 6 characters.

ⓑ Set up your Personal Secure Drive(PSD)

My PSD will be mapped to drive: Z

Drive label for my PSD: Personal Secure Drive

My PSD will be saved on drive: C

Storage space of my PSD: 200 MB

ⓒ Create Your Smart TPM Key

☑ Use USB storage

☑ USB Key 0(F:)

☐ USB Key 1(G:)

☑ Use Bluetooth Device

☐ BT Key 0(USERS-U952039-N)

☐ BT Key 1(TPE-U944093-NB)

☑ BT Key 2(W550i)

☐ BT Key 3(TPE-U93C022)

☑ Enable Backup to BIOS

2. The easy-to-use Smart TPM interface allows users to easily initialize the TPM chip, set up the TPM User Password, configure a Personal Secure Drive, and create a portable user key.

   ⓐ **Set Your TPM Password**

   A password is automatically provided. You can change it to your own password. Be sure to memorize this password because it allows you to create a portable user key using your Bluetooth cell phone or USB flash drive.

   ⓑ **Set up your Personal Secure Drive(PSD)**

   Configure a Personal Secure Drive (PSD) here. Specify the PSD drive letter, drive label, size, and a local drive on which your PSD will be saved.

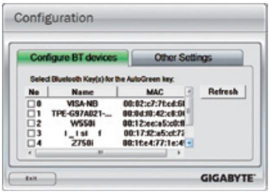
   ⓒ **Create Your Smart TPM Key**

   Set your Bluetooth cell phone/USB flash drive as the Smart TPM user key. You will be able to access/close your PSD data when connecting to the Bluetooth cell phone or when plugging in the USB flash drive that is configured as the Smart TPM user key. Selecting the **Enable Backup to BIOS** check box will store the encrypted TPM User Password in the system BIOS.

3. Click **OK** to complete the settings.

4-8 Auto Green

Auto Green is an easy-to-use tool that provides users with simple options to enable system power savings via a Bluetooth cell phone. When the phone is out of the range of the computer's Bluetooth receiver, the system will enter the specified power saving mode.



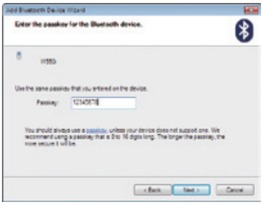
Select Bluetooth Key(s) for the AutoGreen key:

No	Name	MAC
☐ 0	VISA-NB	00:02:c7:7b:cd:6
☐ 1	TPE-G97A021-...	00:0d:f0:42:c8:0
☐ 2	W550i	00:12:ee:a5:d0:f
☐ 3	[illegible]	00:17:f2:a5:d:7
☐ 4	Z750i	00:1f:e4:77:1e:4

The Configuration dialog box:

First, you have to set your Bluetooth cell phone as a portable key. On the Auto Green main menu, click **Configure** and then click **Configure BT devices**. Select the Bluetooth cell phone that you want to use as the portable key. (If the screen doesn't display your Bluetooth cell phone, click **Refresh** to let Auto Green re-detect the device.)

Before creating a Bluetooth cell phone key, make sure your motherboard has a Bluetooth receiver and you have turned on the search and Bluetooth functions on your phone.



Enter the passkey for the Bluetooth device.

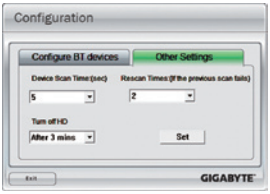
Use the same passkey that you entered on the device.

Passkey: 12345678

You should always use a passkey, unless your device does not support one. We recommend using a passkey that is 8 to 16 digits long. The longer the passkey, the more secure it will be.

Configuring the Bluetooth cell phone key:

After you select a cell phone, the **Add Bluetooth Device Wizard** as shown on the left will appear. Enter a passkey (8~16 digits recommended) which will be used for pairing with the cell phone. Then enter the same passkey on your cell phone.



Device Scan Time(sec): 5

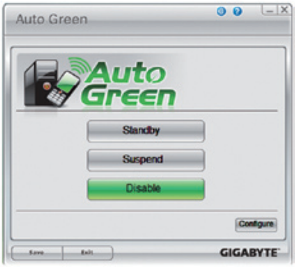
Rescan Times(If the previous scan fails): 2

Turn off HD: After 3 mins

Configuring other Bluetooth settings:

On the **Other Settings** tab, you can set how much time it takes to scan your Bluetooth cell phone key, how many times to rescan the key to make sure it is in range of your computer, and when to turn off the hard drive if the system energy saving state lasts over the predetermined period of time. After completing the settings, click **Set** for the settings to take effect and then click **Exit** to quit.

- Device Scan Time (sec.):
  Set the length of time Auto Green scans your Bluetooth cell phone key, ranging from 5 to 30 seconds in 5-second increment. Auto Green searches for the key based on the length of time you set.
- Rescan Times:
  Set how many times Auto Green will rescan your Bluetooth cell phone key if it does not detect it, ranging from 2 to 5 times. Auto Green will keep rescanning according to the times you set. When the times limit is reached and your Bluetooth cell phone key is still not detected, the system will enter the selected energy saving mode.
- Turn off HD:
  Set when to turn off the hard drive. If the system inactivity time exceeds the specified time limit, the hard drive will be turned off.



Selecting a system energy saving mode:

Depending on your needs, select a system power saving mode on the Auto Green main menu and click **Save** to save the settings.

Button	Description
Standby	Enters Power on Suspend mode
Suspend	Enters Suspend to RAM mode
Disable	Disables this function

The Bluetooth dongle included in the motherboard package (Note) allows you to wake up the system from Suspend to RAM mode without the need to press the power button first.

(Note) Whether the Bluetooth dongle is included depends on the motherboard models. Before installing the Bluetooth dongle, be sure to turn off other Bluetooth receiver on your computer.

4-9 eXtreme Hard Drive (X.H.D)

With GIGABYTE eXtreme Hard Drive (X.H.D)(Note 1), users can quickly configure a RAID-ready system for RAID 0 when a new SATA drive is added. For a RAID 0 array that already exists, users also can use X.H.D to easily add a hard drive into the array to expand its capacity. All with a simple click of a button, X.H.D helps to enhance your hard drive read/write performance without the need for complex and time-consuming configurations. The following procedure details the steps to set up a RAID-ready system and configure it for RAID 0.

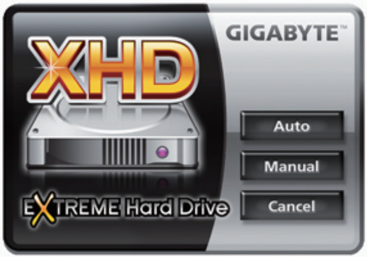
A. Setting Up a RAID-Ready System

Step 1: Configure the system BIOS
Enter the system BIOS Setup program, set **eXtreme Hard Drive (X.H.D)** under the **Integrated Peripherals** menu to **Enabled** to enable RAID for the Intel SATA controllers.

Step 2: Install the RAID driver and operating system
The X.H.D utility supports Windows 7/Vista/XP. Before installing the operating system, you have to load the SATA controller driver first. Without the driver, the hard drive may not be recognized during the Windows setup process. (For more details, refer to Chapter 5, "Installing the SATA RAID/AHCI Driver and Operating System.")

Step 3: Install the motherboard drivers and the X.H.D utiltiy
After installing the operating system, insert the motherboard driver disk. You can click the Xpress Install All button to automatically install all motherboard drivers, including the X.H.D utility. Or you can go to the Application Software screen to individually install the X.H.D utility later.

B. Using GIGABYTE eXtreme Hard Drive (X.H.D)



Instructions:(Note 2)
Before launching X.H.D, make sure the newly added hard-drive has equal or greater capacity than the RAID-ready system drive. (To add a new hard drive into a RAID 0 array that's been created earlier, make sure the new drive is greater than or equal to the biggest drive in the array.)

1. Auto **To automatically set up a RAID 0 array:**
   Click **Auto** to automatically and quickly set up a RAID 0 array.

2. Manual **To manually set up a RAID array:** (Note 3):
   Click **Manual** to access the Intel Matrix Storage Console, with which you can build a RAID 0, RAID 1, or other supported RAID array depending on your needs and hardware components.

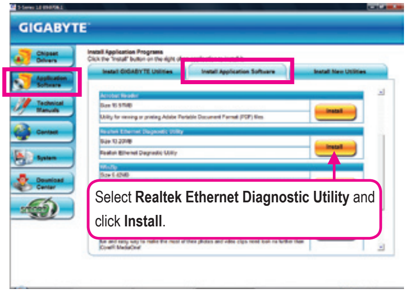
3. Cancel **Exits the X.H.D utility:**
   Click **Cancel** to exit the X.H.D utility.

(Note 1) The X.H.D utility only supports the SATA controllers integrated in the Intel Chipset.
(Note 2) It is recommended that before you run the X.H.D utility, back up all of your data to avoid risk of hardware damage or lost of data.
(Note 3) If you manually build a non-RAID 0 array, you'll not be able to automatically set up a RAID 0 array later using the **Auto** function.

4-10 Teaming

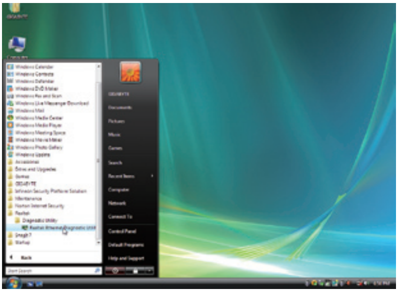
Dual LAN with Teaming functionality enabled allows two single connections to act as one single connection for twice the transmission bandwidth, making data transmission more effective and also improving the quality of transmission of distant image(s). Fault tolerance on the dual LAN network prevents network downtime by transferring the workload from a failed port to a working port.

- The speed of transmission is subject to the actual network environment or status even with Teaming enabled.
- To enable Teaming or Bonding (IEEE 802.3ad Link Aggregation) feature, it is required that the connected network switch or router device supports the IEEE 802.3ad LACP standard. Please refer to your network switch or router device manual for further details.

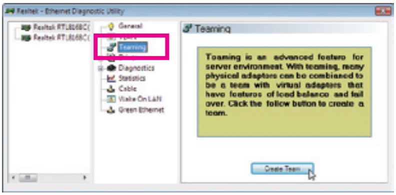

GIGABYTE
Install Application Software
Install

Select **Realtek Ethernet Diagnostic Utility** and click **Install**.

Step 1:
Insert the motherboard driver disk and select **Application Software**, **Install Application Software**. Click **Install** under **Realtek Ethernet Diagnostic Utility** for installation. Restart your system when completed.

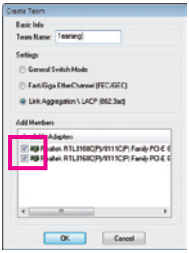


Step 2:
Click the **Start** icon. Point to **All Programs**, **Realtek**, **Diagnostic Utility**, **Realtek Ethernet Diagnostic Utility** to access the utility.


Realtek - Ethernet Diagnostic Utility
General
Teaming
Diagnostics
Statistics
Cable
Wake On LAN
Green Ethernet
Teaming
Create Team

Teaming is an advanced feature for server environment. With teaming, many physical adaptors can be combianed to be a team with virtual adapters that have features of load balance and fail over. Click the follow button to create a team.

Step 3:
Choose **Teaming** and click the **Create Team** button.


Create Team
Basic Info
Settings
Add Members
OK
Cancel

Team Name: Teaming

○ General Switch Mode

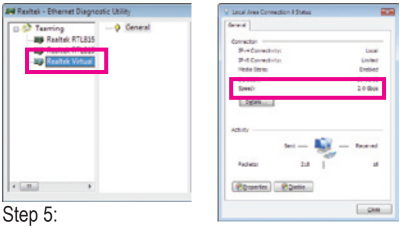
○ Fast/Giga EtherChannel (FEC/GEC)

● Link Aggregation \ LACP (802.3ad)

☑ Realtek RTL8168C(P)/8111C(P) Family PCI-E

☑ Realtek RTL8168C(P)/8111C(P) Family PCI-E

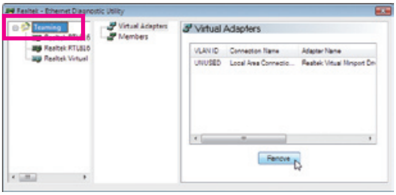
Step 4:
Give a name for the Team, e.g. Teaming, and set up the Teaming mode based on your hub's specifications. Select the check boxes for the two available adapters and click **OK**.


Realtek - Ethernet Diagnostic Utility
Teaming
Realtek RTL815
Realtek Virtual
General
Local Area Connection Status

Speed: 2.0 Gbps

Step 5:
After you complete the setup, you will see the third virtual network interface. Go to **Local Area Connection Status** and you will see the connection speed is 2.0 Gbps.

Removing the Existing Teaming:


Realtek - Ethernet Diagnostic Utility
Teaming
Realtek RTL816
Realtek Virtual
Virtual Adapters
Members
Virtual Adapters
VLAN ID
Connection Name
Adapter Name
UNUSED
Local Area Connectio...
Realtek Virtual Miniport Dri
Remove

To remove the existing Teaming, click the item you created, and then click the **Remove** button.

Chapter 5 Appendix

5-1 Configuring SATA Hard Drive(s)

To configure SATA hard drive(s), follow the steps below:

A. Install SATA hard drive(s) in your computer.
B. Configure SATA controller mode in BIOS Setup.
C. Configure a RAID array in RAID BIOS. (Note 1)
D. Make a floppy disk containing the SATA RAID/AHCI driver for Windows XP. (Note 2)
E. Install the SATA RAID/AHCI driver and operating system. (Note 2)

Before you begin

Please prepare:

- At least two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID, you may prepare only one hard drive.
- An empty formatted floppy disk.
- Windows Vista/XP setup disk.
- Motherboard driver disk.

5-1-1 Configuring Intel P55 SATA Controllers

A. Installing SATA hard drive(s) in your computer

Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port on the motherboard. If there is more than one SATA controller on your motherboard, refer to "Chapter 1," "Hardware Installation," to identify the SATA controller for the SATA port. (For example, on this motherboard, the SATA2_0, SATA2_1, SATA2_2, SATA2_3, SATA2_4 and SATA2_5 ports are supported by P55 Chipset.) Then connect the power connector from your power supply to the hard drive.

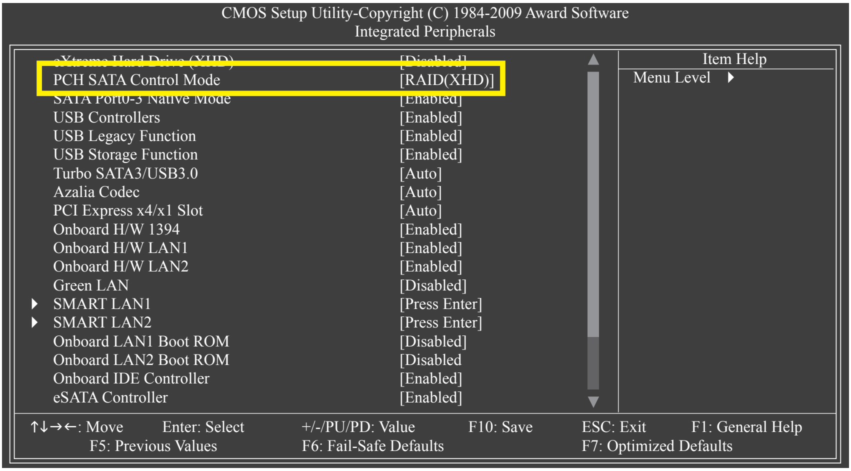
(Note 1) Skip this step if you do not want to create RAID array.
(Note 2) Required when the SATA controller is set to AHCI or RAID mode.

B. Configuring SATA controller mode in BIOS Setup

Make sure to configure the SATA controller mode correctly in system BIOS Setup.

Step 1:

Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). To create RAID, set **PCH SATA Control Mode** under the **Integrated Peripherals** menu to **RAID(XHD)** (Figure 1) (**IDE** by default). If you do not want to create RAID, set this item to **IDE** or **AHCI**.



```
              CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                              Integrated Peripherals

   eXtreme Hard Drive (XHD)          [Disabled]        Item Help
   PCH SATA Control Mode             [RAID(XHD)]       Menu Level  ►
   SATA Port0-3 Native Mode          [Enabled]
   USB Controllers                   [Enabled]
   USB Legacy Function               [Enabled]
   USB Storage Function              [Enabled]
   Turbo SATA3/USB3.0                [Auto]
   Azalia Codec                      [Auto]
   PCI Express x4/x1 Slot            [Auto]
   Onboard H/W 1394                  [Enabled]
   Onboard H/W LAN1                  [Enabled]
   Onboard H/W LAN2                  [Enabled]
   Green LAN                         [Disabled]
 ► SMART LAN1                        [Press Enter]
 ► SMART LAN2                        [Press Enter]
   Onboard LAN1 Boot ROM             [Disabled]
   Onboard LAN2 Boot ROM             [Disabled
   Onboard IDE Controller            [Enabled]
   eSATA Controller                  [Enabled]

 ↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
         F5: Previous Values       F6: Fail-Safe Defaults        F7: Optimized Defaults
```

Figure 1

Step 2:

Save changes and exit BIOS Setup.

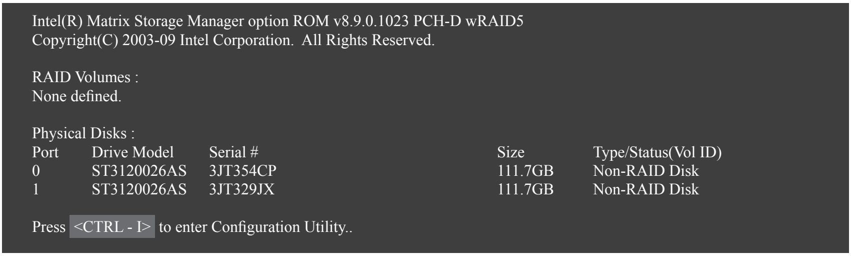
The BIOS Setup menus described in this section may differ from the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version.

C. Configuring a RAID array in RAID BIOS

Enter the RAID BIOS setup utility to configure a RAID array. Skip this step and proceed with the installation of Windows operating system for a non-RAID configuration.

Step 1:

After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-I> to enter Configuration Utility" (Figure 2). Press <Ctrl> + <I> to enter the P55 RAID Configuration Utility.



```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

RAID Volumes :
None defined.

Physical Disks :
Port     Drive Model     Serial #                  Size       Type/Status(Vol ID)
0        ST3120026AS     3JT354CP                  111.7GB    Non-RAID Disk
1        ST3120026AS     3JT329JX                  111.7GB    Non-RAID Disk

Press <CTRL - I> to enter Configuration Utility..
```

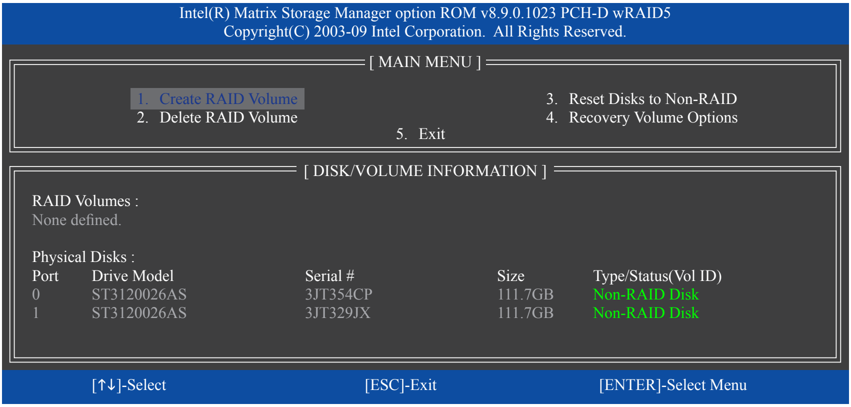
Figure 2

Step 2:

After you press <Ctrl> + <I>, the **MAIN MENU** screen will appear (Figure 3).

Create RAID Volume

If you want to create a RAID array, select **Create RAID** Volume in **MAIN MENU** and press <Enter>.

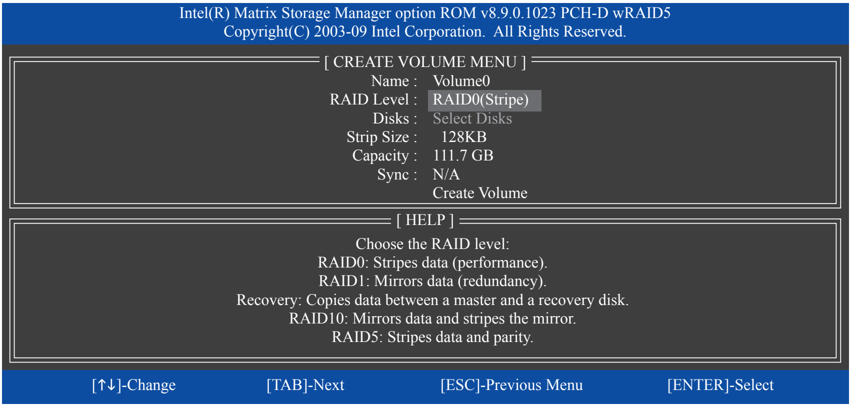


```
     Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
         Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

[ MAIN MENU ]
        1.  Create RAID Volume                3.  Reset Disks to Non-RAID
        2.  Delete RAID Volume                4.  Recovery Volume Options
                              5.  Exit

[ DISK/VOLUME INFORMATION ]
RAID Volumes :
None defined.

Physical Disks :
Port     Drive Model        Serial #           Size       Type/Status(Vol ID)
0        ST3120026AS        3JT354CP           111.7GB    Non-RAID Disk
1        ST3120026AS        3JT329JX           111.7GB    Non-RAID Disk

      [↑↓]-Select            [ESC]-Exit            [ENTER]-Select Menu
```

Figure 3

Step 3:

After entering the **CREATE VOLUME MENU** screen, enter a volume name with 1~16 letters (letters cannot be special characters) under the **Name** item and press <Enter>. Then, select a RAID level (Figure 4). RAID levels supported include RAID 0, RAID 1, Recovery, RAID 10, and RAID 5 (the selections available depend on the number of the hard drives being installed). Press <Enter> to proceed.

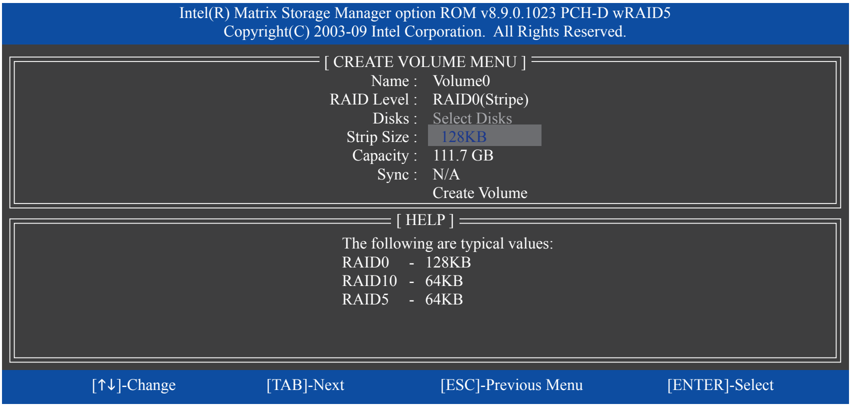


```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

[ CREATE VOLUME MENU ]
      Name :  Volume0
RAID Level :  RAID0(Stripe)
     Disks :  Select Disks
 Strip Size :   128KB
  Capacity :  111.7 GB
      Sync :  N/A
              Create Volume

[ HELP ]
Choose the RAID level:
RAID0: Stripes data (performance).
RAID1: Mirrors data (redundancy).
Recovery: Copies data between a master and a recovery disk.
RAID10: Mirrors data and stripes the mirror.
RAID5: Stripes data and parity.

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

Figure 4

Step 4:

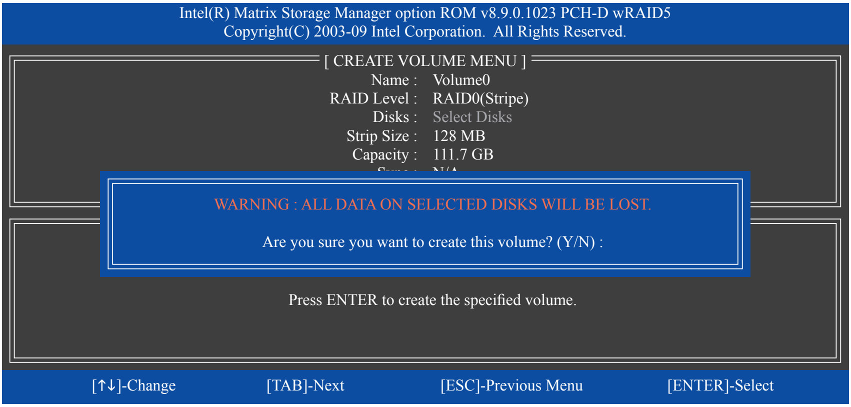
Under **Disks** item, select the hard drives to be included in the RAID array. If only two hard drives are installed, they will be automatically assigned to the array. Set the stripe block size (Figure 5) if necessary. The stripe block size can be set from 4 KB to 128 KB. Once you have selected the stripe block size, press <Enter>.



```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

[ CREATE VOLUME MENU ]
      Name :  Volume0
RAID Level :  RAID0(Stripe)
     Disks :  Select Disks
 Strip Size :   128KB
  Capacity :  111.7 GB
      Sync :  N/A
              Create Volume

[ HELP ]
The following are typical values:
RAID0    -  128KB
RAID10   -  64KB
RAID5    -  64KB

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

Figure 5

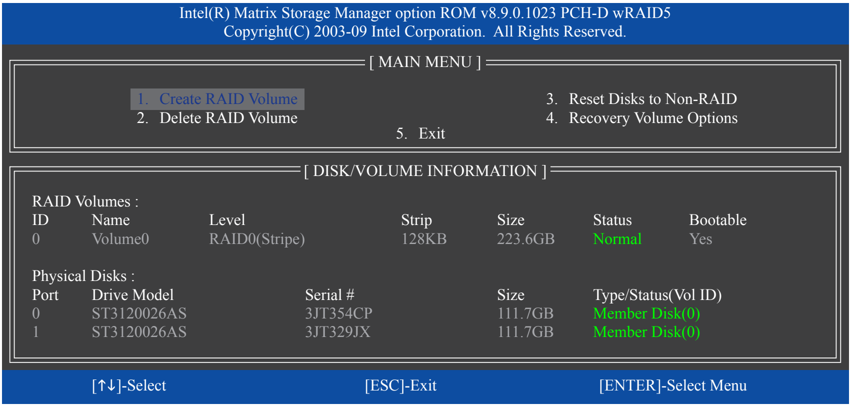
Step 5:
Enter the array capacity and press <Enter>. Finally press <Enter> on the **Create Volume** item to begin creating the RAID array. When prompted to confirm whether to create this volume, press <Y> to confirm or <N> to cancel (Figure 6).



```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

[ CREATE VOLUME MENU ]
        Name :  Volume0
  RAID Level :  RAID0(Stripe)
       Disks :  Select Disks
  Strip Size :  128 MB
    Capacity :  111.7 GB

WARNING : ALL DATA ON SELECTED DISKS WILL BE LOST.

Are you sure you want to create this volume? (Y/N) :

Press ENTER to create the specified volume.

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

Figure 6

When completed, you can see detailed information about the RAID array in the **DISK/VOLUME INFORMATION** section, including the RAID level, stripe block size, array name, and array capacity, etc. (Figure 7)



```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

[ MAIN MENU ]
    1.  Create RAID Volume                  3.  Reset Disks to Non-RAID
    2.  Delete RAID Volume                  4.  Recovery Volume Options
                            5.  Exit

[ DISK/VOLUME INFORMATION ]
RAID Volumes :
ID    Name       Level            Strip    Size      Status    Bootable
0     Volume0    RAID0(Stripe)    128KB    223.6GB   Normal    Yes

Physical Disks :
Port  Drive Model     Serial #         Size      Type/Status(Vol ID)
0     ST3120026AS     3JT354CP         111.7GB   Member Disk(0)
1     ST3120026AS     3JT329JX         111.7GB   Member Disk(0)

[↑↓]-Select            [ESC]-Exit            [ENTER]-Select Menu
```

Figure 7

To exit the RAID BIOS utility, press <Esc> or select **5. Exit** in **MAIN MENU**.

Now, you can proceed to create the SATA RAID/AHCI driver diskette and install the SATA RAID/AHCI driver and operating system.

Recovery Volume Options

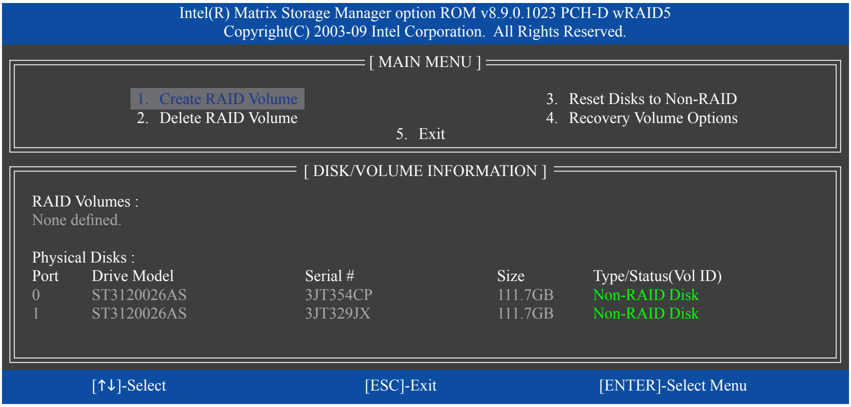
Intel Rapid Recover Technology provides data protection by allowing users to easily restore data and system operation using a designated recovery drive. With the Rapid Recovery Technology, which employs RAID 1 functionality, users can copy the data from the master drive to the recovery drive; if needed, the data on the recovery drive can be restored back to the master drive.

Before you begin:

- The recovery drive must have equal or greater capacity than the master drive.
- A recovery volume can be created with two hard drives only. A recovery volume and a RAID array cannot co-exist in the system at the same time, that is, if you have already created a recovery volume, you are unable to create a RAID array.
- By default, only the master drive can be riewed in the operating system; the recovery drive is hidden.

Step 1:

select **Create RAID Volume** in **MAIN MENU** and press <Enter> (Figure 8).



Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[MAIN MENU]

1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Recovery Volume Options
5. Exit

[DISK/VOLUME INFORMATION]

RAID Volumes :
None defined.

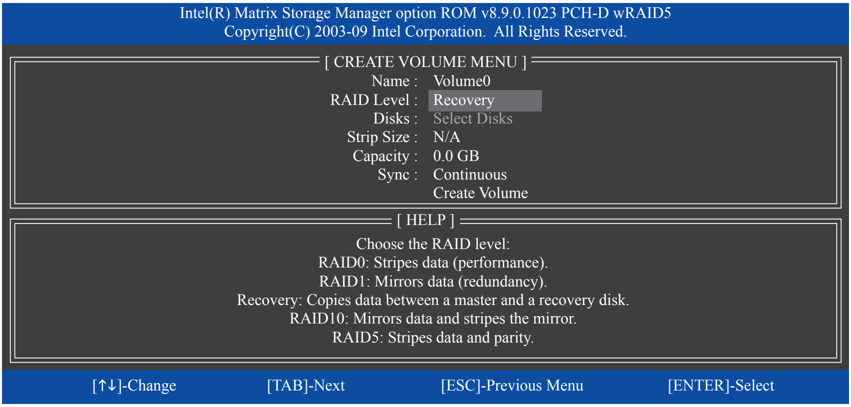
Physical Disks :

Port	Drive Model	Serial #	Size	Type/Status(Vol ID)
0	ST3120026AS	3JT354CP	111.7GB	Non-RAID Disk
1	ST3120026AS	3JT329JX	111.7GB	Non-RAID Disk

Figure 8

Step 2:

After entering the volume name, select **Recovery** under the **RAID Level** item and press <Enter> (Figure 9).



Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[CREATE VOLUME MENU]

Name : Volume0
RAID Level : Recovery
Disks : Select Disks
Strip Size : N/A
Capacity : 0.0 GB
Sync : Continuous
Create Volume

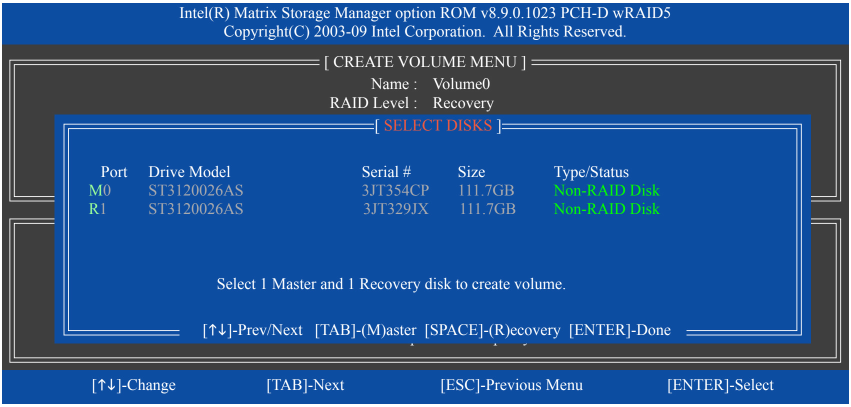
[HELP]

Choose the RAID level:
RAID0: Stripes data (performance).
RAID1: Mirrors data (redundancy).
Recovery: Copies data between a master and a recovery disk.
RAID10: Mirrors data and stripes the mirror.
RAID5: Stripes data and parity.

Figure 9

Step 3:

Press <Enter> under the **Select Disks** item. In the **SELECT DISKS** box, press <Tab> on the hard drive you want to use for the master drive and press <Space> on the hard drive you want to use for the recovery drive. (Make sure the recovery drive has equal or larger capacity than the master drive.) Then press <Enter> to confirm. (Figure 10)

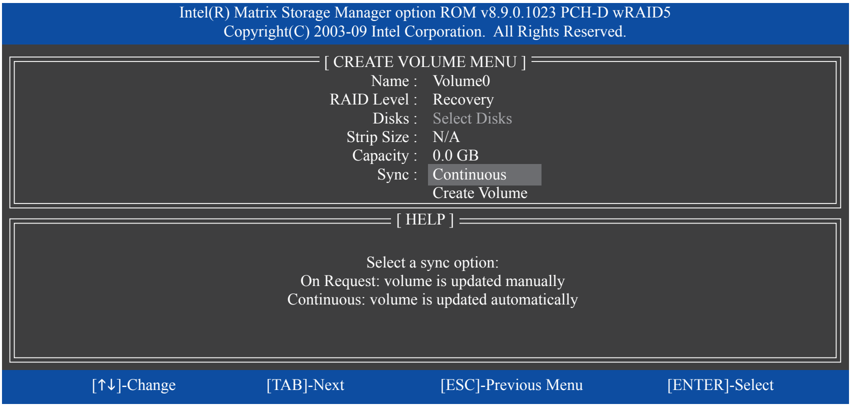


```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

[ CREATE VOLUME MENU ]
      Name :   Volume0
RAID Level :   Recovery

[ SELECT DISKS ]
  Port  Drive Model      Serial #   Size      Type/Status
  M0    ST3120026AS      3JT354CP   111.7GB   Non-RAID Disk
  R1    ST3120026AS      3JT329JX   111.7GB   Non-RAID Disk

      Select 1 Master and 1 Recovery disk to create volume.

  [↑↓]-Prev/Next  [TAB]-(M)aster  [SPACE]-(R)ecovery  [ENTER]-Done

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

Figure 10

Step 4:

Under **Sync**, select **Continuous** or **On Request** (Figure 11). When set to **Continuous**, changes made to the data on the master drive will be automatically and continuously copied to the recovery drive when both hard drives are installed in the system. **On Request** allows users to update data from the master drive to the recovery drive manually using the **Update Volume** function of the Intel Matrix Storage Console in the operating system. **On Request** also allows users to restore the master drive to a previous state.



```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

[ CREATE VOLUME MENU ]
      Name :   Volume0
RAID Level :   Recovery
     Disks :   Select Disks
Strip Size :   N/A
  Capacity :   0.0 GB
      Sync :   Continuous
               Create Volume

[ HELP ]
Select a sync option:
On Request: volume is updated manually
Continuous: volume is updated automatically

[↑↓]-Change    [TAB]-Next    [ESC]-Previous Menu    [ENTER]-Select
```

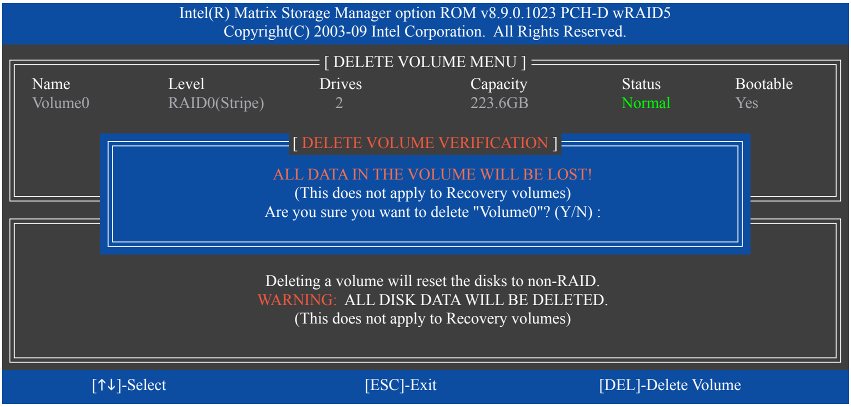
Figure 11

Step 5:

Finally press <Enter> on the **Create Volume** item to begin creating the Recovery Volume and follow the on-screen instructions to complete.

Delete RAID Volume

To delete a RAID array, select **Delete RAID Volume** in **MAIN MENU** and press <Enter>. In the **DELETE VOLUME MENU** section, use the up or down arrow key to select the array to be deleted and press <Delete>. When prompted to confirm your selection (Figure 12), press <Y> to confirm or <N> to abort.



Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[DELETE VOLUME MENU]

Name	Level	Drives	Capacity	Status	Bootable
Volume0	RAID0(Stripe)	2	223.6GB	Normal	Yes

[DELETE VOLUME VERIFICATION]

ALL DATA IN THE VOLUME WILL BE LOST!
(This does not apply to Recovery volumes)
Are you sure you want to delete "Volume0"? (Y/N) :

Deleting a volume will reset the disks to non-RAID.
WARNING: ALL DISK DATA WILL BE DELETED.
(This does not apply to Recovery volumes)

Figure 12

5-1-2 Configuring JMB362 SATA Controller

A. Installing SATA hard drive(s) in your computer

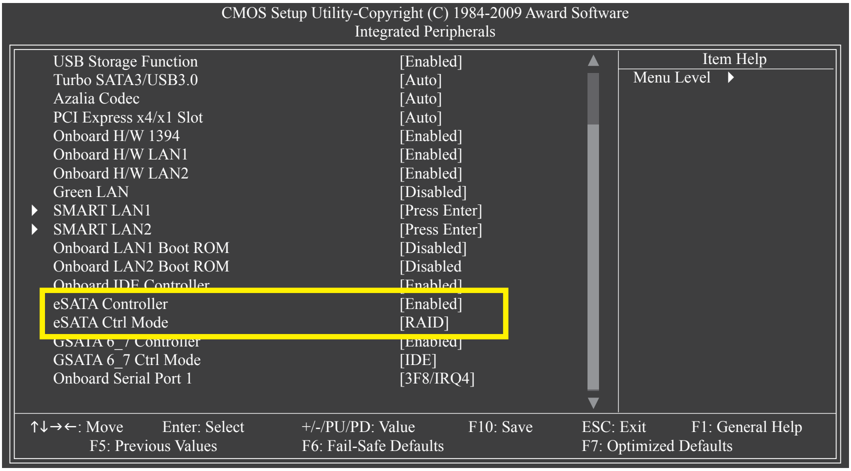
Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port on the motherboard. The JMB362 SATA controller controls the eSATA ports on the back panel. Then connect the power connector from your power supply to the hard drive.

B. Configuring SATA controller mode in BIOS Setup

Make sure to configure the SATA controller mode correctly in system BIOS Setup.

Step 1:

Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). Make sure **eSATA Controller** under the **Integrated Peripherals** menu is enabled (Figure 1). To create RAID, set **eSATA Ctrl Mode** to **RAID**.



```
              CMOS Setup Utility-Copyright (C) 1984-2009 Award Software
                               Integrated Peripherals

     USB Storage Function                 [Enabled]              Item Help
     Turbo SATA3/USB3.0                   [Auto]              Menu Level  ▶
     Azalia Codec                         [Auto]
     PCI Express x4/x1 Slot               [Auto]
     Onboard H/W 1394                     [Enabled]
     Onboard H/W LAN1                     [Enabled]
     Onboard H/W LAN2                     [Enabled]
     Green LAN                            [Disabled]
  ▶  SMART LAN1                           [Press Enter]
  ▶  SMART LAN2                           [Press Enter]
     Onboard LAN1 Boot ROM                [Disabled]
     Onboard LAN2 Boot ROM                [Disabled
     Onboard IDE Controller               [Enabled]
     eSATA Controller                     [Enabled]
     eSATA Ctrl Mode                      [RAID]
     GSATA 6_7 Controller                 [Enabled]
     GSATA 6_7 Ctrl Mode                  [IDE]
     Onboard Serial Port 1                [3F8/IRQ4]

  ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
          F5: Previous Values    F6: Fail-Safe Defaults           F7: Optimized Defaults
```

Figure 1

Step 2:

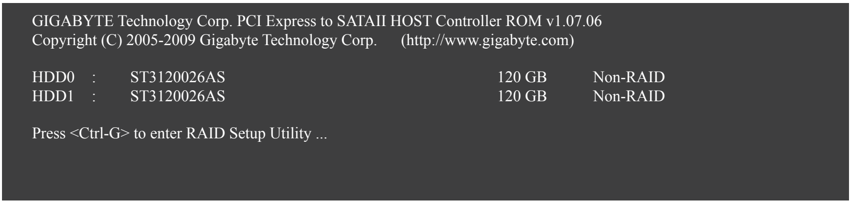
Save changes and exit BIOS Setup.

The BIOS Setup menus described in this section may differ from the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version.

C. Configuring a RAID array in RAID BIOS

Enter the RAID BIOS setup utility to configure a RAID array. Skip this step and proceed to the installation of Windows operating system for a non-RAID configuration.

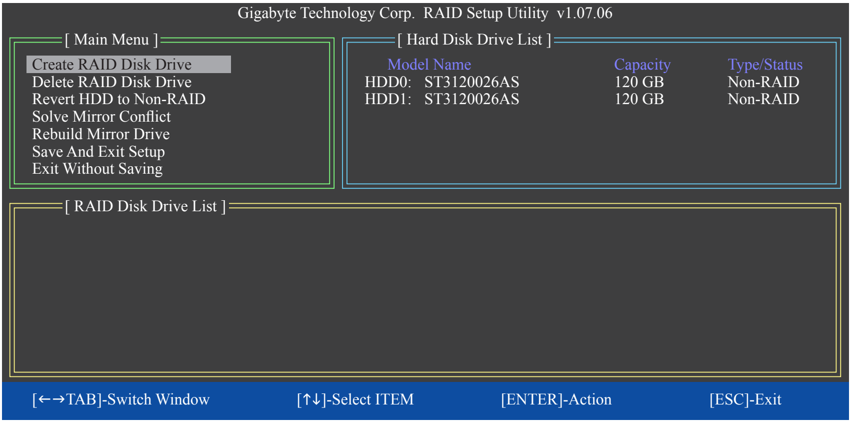
After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-G> to enter RAID Setup Utility" (Figure 2). Press <Ctrl> + <G> to enter the RAID setup utility.



```
GIGABYTE Technology Corp. PCI Express to SATAII HOST Controller ROM v1.07.06
Copyright (C) 2005-2009 Gigabyte Technology Corp.     (http://www.gigabyte.com)

HDD0   :      ST3120026AS                                    120 GB        Non-RAID
HDD1   :      ST3120026AS                                    120 GB        Non-RAID

Press <Ctrl-G> to enter RAID Setup Utility ...
```

Figure 2

In the main screen of the RAID setup utility (Figure 3), use the up or down arrow key to highlight through choices in the **Main Menu** block. Highlight the item that you wish to execute and press <Enter>.



Gigabyte Technology Corp. RAID Setup Utility v1.07.06

[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
[RAID Disk Drive List]
[←→TAB]-Switch Window
[↑↓]-Select ITEM
[ENTER]-Action
[ESC]-Exit

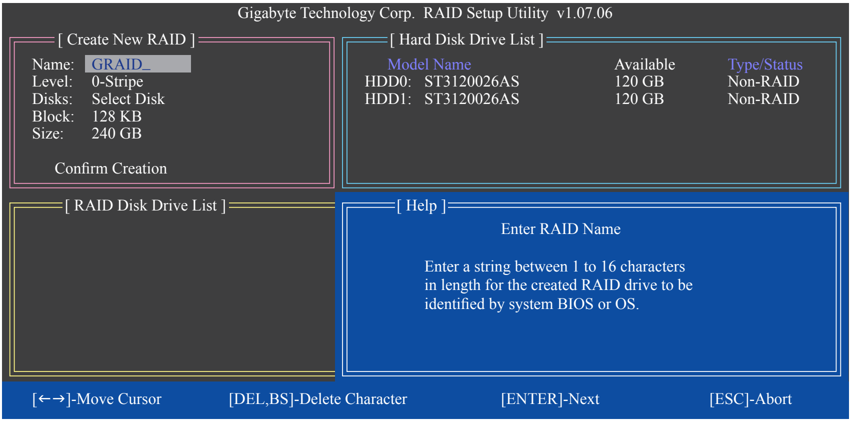
	Model Name	Capacity	Type/Status
HDD0:	ST3120026AS	120 GB	Non-RAID
HDD1:	ST3120026AS	120 GB	Non-RAID

Figure 3

Note: In the main screen, you can select a hard drive in the **Hard Disk Drive List** block and press <Enter> to see detailed information about the selected hard drive.

Create a RAID Array:

In the main screen, press <Enter> on the **Create RAID Disk Drive** item. Then the **Create New RAID** screen appears (Figure 4).



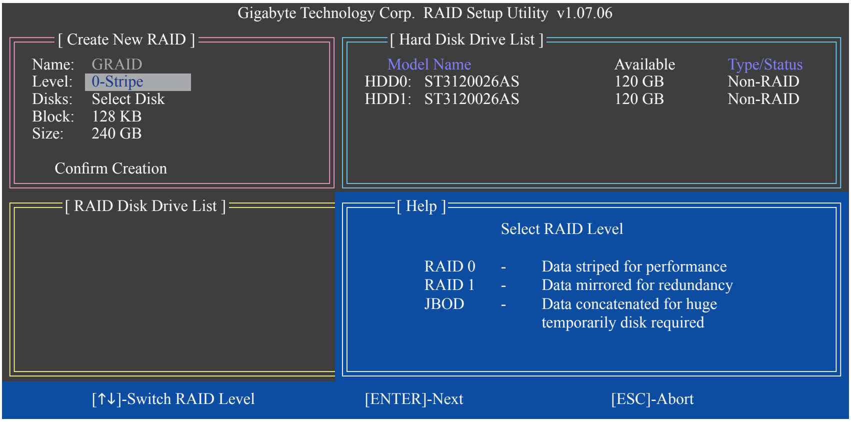
```
Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06

[ Create New RAID ]                [ Hard Disk Drive List ]
  Name:   GRAID_                        Model Name          Available    Type/Status
  Level:  0-Stripe                 HDD0:  ST3120026AS       120 GB       Non-RAID
  Disks:  Select Disk              HDD1:  ST3120026AS       120 GB       Non-RAID
  Block:  128 KB
  Size:   240 GB

     Confirm Creation

[ RAID Disk Drive List ]           [ Help ]
                                            Enter RAID Name

                                   Enter a string between 1 to 16 characters
                                   in length for the created RAID drive to be
                                   identified by system BIOS or OS.

[←→]-Move Cursor   [DEL,BS]-Delete Character   [ENTER]-Next   [ESC]-Abort
```

Figure 4

The **Create New RAID** block displays all the items that need to be set for creating an array (Figure 5).

Steps:

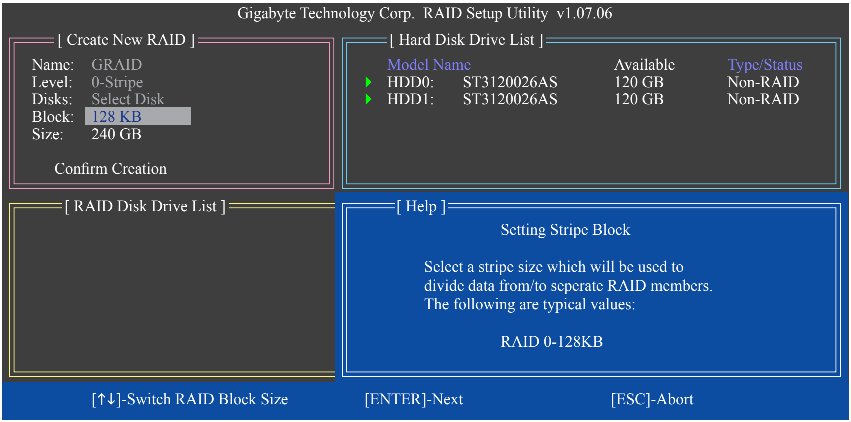
1. **Enter Array Name:** Under the **Name** item, enter an array name with 1~16 letters (letters cannot be special characters) and press <Enter>.
2. **Select RAID Mode:** Under the **Level** item, use up or down arrow key to select RAID 0 (Stripe), RAID 1 (Mirror) or JBOD (Figure 5). Then press <Enter> to move onto the next step.



```
Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06

[ Create New RAID ]                [ Hard Disk Drive List ]
  Name:   GRAID                         Model Name          Available    Type/Status
  Level:  0-Stripe                 HDD0:  ST3120026AS       120 GB       Non-RAID
  Disks:  Select Disk              HDD1:  ST3120026AS       120 GB       Non-RAID
  Block:  128 KB
  Size:   240 GB

     Confirm Creation

[ RAID Disk Drive List ]           [ Help ]
                                            Select RAID Level

                                   RAID 0   -   Data striped for performance
                                   RAID 1   -   Data mirrored for redundancy
                                   JBOD     -   Data concatenated for huge
                                                temporarily disk required

      [↑↓]-Switch RAID Level          [ENTER]-Next          [ESC]-Abort
```

Figure 5

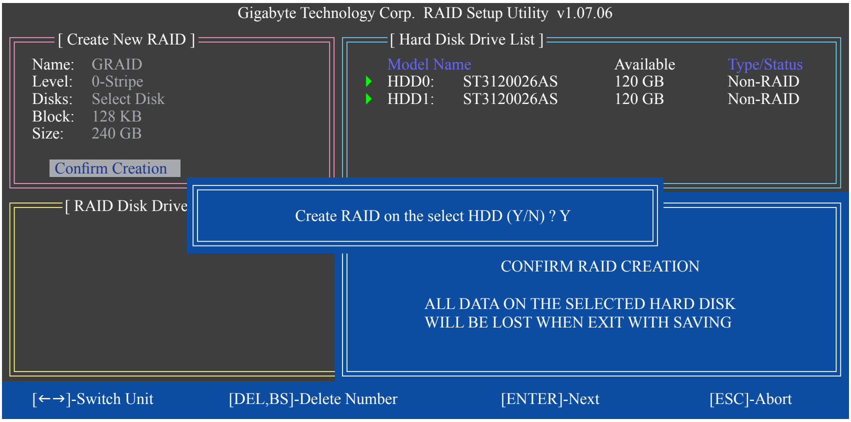
3. **Assign Array Disks:** After a RAID mode is selected, RAID BIOS automatically assigns the two hard drives installed as the RAID drives.
4. **Set Block Size (RAID 0 only):** Under the **Block** item, use the up or down arrow key to select the stripe block size (Figure 6), ranging from 4 KB to 128 KB. Press <Enter>.



```
Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06

[ Create New RAID ]                [ Hard Disk Drive List ]
Name:   GRAID                      Model Name                 Available   Type/Status
Level:  0-Stripe                   HDD0:    ST3120026AS       120 GB      Non-RAID
Disks:  Select Disk                HDD1:    ST3120026AS       120 GB      Non-RAID
Block:  128 KB
Size:   240 GB

    Confirm Creation

[ RAID Disk Drive List ]           [ Help ]
                                          Setting Stripe Block

                                   Select a stripe size which will be used to
                                   divide data from/to seperate RAID members.
                                   The following are typical values:

                                          RAID 0-128KB

[↑↓]-Switch RAID Block Size        [ENTER]-Next              [ESC]-Abort
```

Figure 6

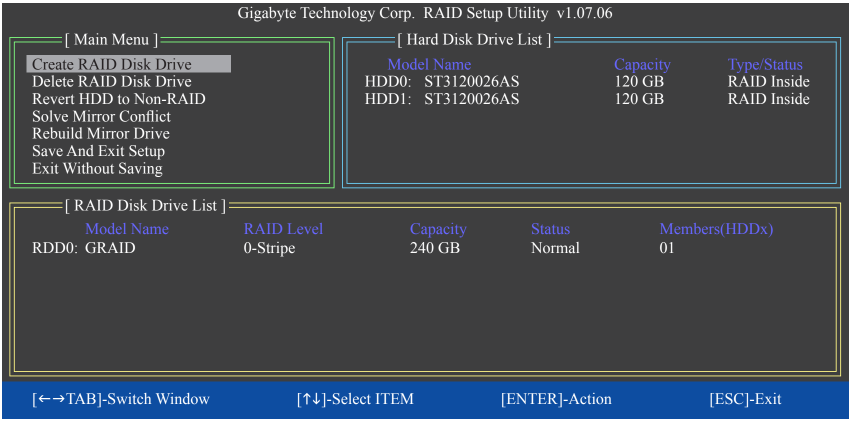
5. **Set Array Size:** Under the **Size** item, enter the size of the array and press <Enter>.
6. **Confirm Creation:** After all of the items above are configured, the selection bar automatically jumps to the **Confirm Creation** item. Press <Enter>. When prompted to confirm your selection (Figure 7), press <Y> to confirm or <N> to abort.



```
Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06

[ Create New RAID ]                [ Hard Disk Drive List ]
Name:   GRAID                      Model Name                 Available   Type/Status
Level:  0-Stripe                   HDD0:    ST3120026AS       120 GB      Non-RAID
Disks:  Select Disk                HDD1:    ST3120026AS       120 GB      Non-RAID
Block:  128 KB
Size:   240 GB

    Confirm Creation

[ RAID Disk Drive
              Create RAID on the select HDD (Y/N) ? Y

                                          CONFIRM RAID CREATION

                                   ALL DATA ON THE SELECTED HARD DISK
                                   WILL BE LOST WHEN EXIT WITH SAVING

[←→]-Switch Unit    [DEL,BS]-Delete Number    [ENTER]-Next    [ESC]-Abort
```

Figure 7

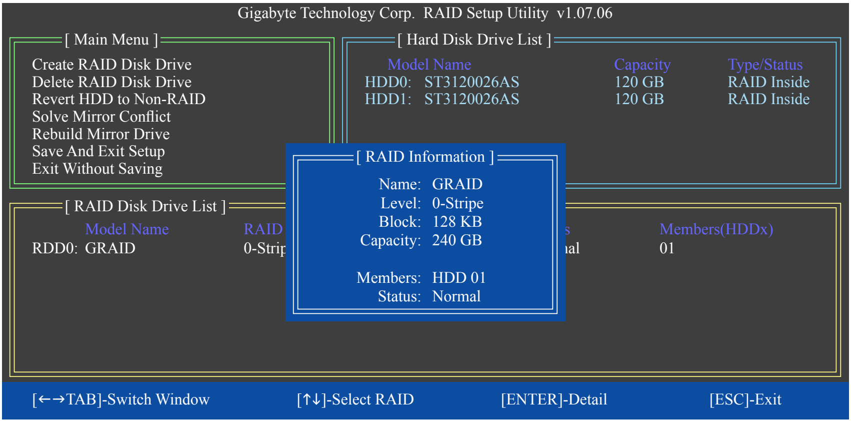
When finished, the new RAID array will be displayed in the **RAID Disk Drive List** block (Figure 8).



```
                 Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06
[ Main Menu ]                          [ Hard Disk Drive List ]
  Create RAID Disk Drive                    Model Name                Capacity     Type/Status
  Delete RAID Disk Drive                 HDD0:  ST3120026AS           120 GB       RAID Inside
  Revert HDD to Non-RAID                 HDD1:  ST3120026AS           120 GB       RAID Inside
  Solve Mirror Conflict
  Rebuild Mirror Drive
  Save And Exit Setup
  Exit Without Saving

[ RAID Disk Drive List ]
        Model Name         RAID Level       Capacity      Status       Members(HDDx)
  RDD0:  GRAID             0-Stripe         240 GB        Normal       01

  [←→TAB]-Switch Window      [↑↓]-Select ITEM      [ENTER]-Action      [ESC]-Exit
```

Figure 8

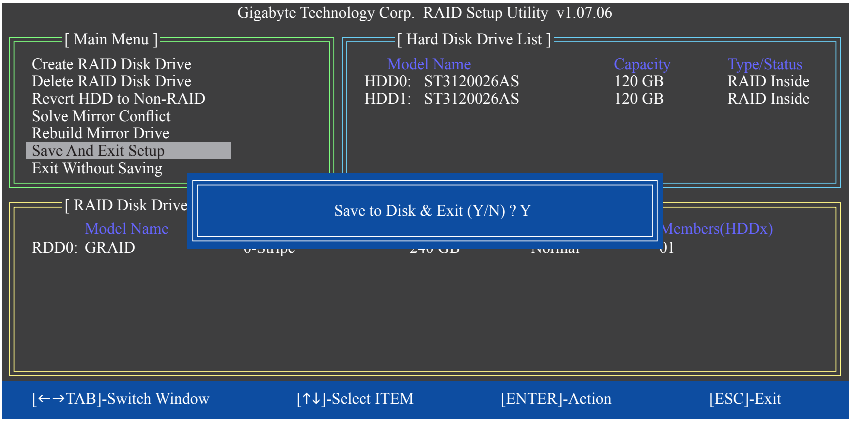
To check more detailed information about the array, use the <Tab> key while in the **Main Menu** block to move the selection bar to the **RAID Disk Drive List** block. Select the array and press <Enter>. A small window displaying the array information will appear in the center of the screen (Figure 9).



```
                 Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06
[ Main Menu ]                          [ Hard Disk Drive List ]
  Create RAID Disk Drive                    Model Name                Capacity     Type/Status
  Delete RAID Disk Drive                 HDD0:  ST3120026AS           120 GB       RAID Inside
  Revert HDD to Non-RAID                 HDD1:  ST3120026AS           120 GB       RAID Inside
  Solve Mirror Conflict
  Rebuild Mirror Drive               [ RAID Information ]
  Save And Exit Setup                      Name:  GRAID
  Exit Without Saving                     Level:  0-Stripe
                                          Block:  128 KB
[ RAID Disk Drive List ]               Capacity:  240 GB
        Model Name         RAID
  RDD0:  GRAID             0-Strip      Members:  HDD 01    s        Members(HDDx)
                                         Status:  Normal    ial      01

  [←→TAB]-Switch Window      [↑↓]-Select RAID      [ENTER]-Detail      [ESC]-Exit
```

Figure 9

7. **Save and Exit Setup:** After configuring the RAID array, select the **Save And Exit Setup** item in the main screen to save your settings before exiting the RAID BIOS utility, then press <Y> (Figure 10).


Gigabyte Technology Corp. RAID Setup Utility v1.07.06
[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
[RAID Disk Drive
[←→TAB]-Switch Window
[↑↓]-Select ITEM
[ENTER]-Action
[ESC]-Exit

```
Model Name                      Capacity     Type/Status
HDD0:  ST3120026AS              120 GB       RAID Inside
HDD1:  ST3120026AS              120 GB       RAID Inside
```

```
Save to Disk & Exit (Y/N) ? Y
```

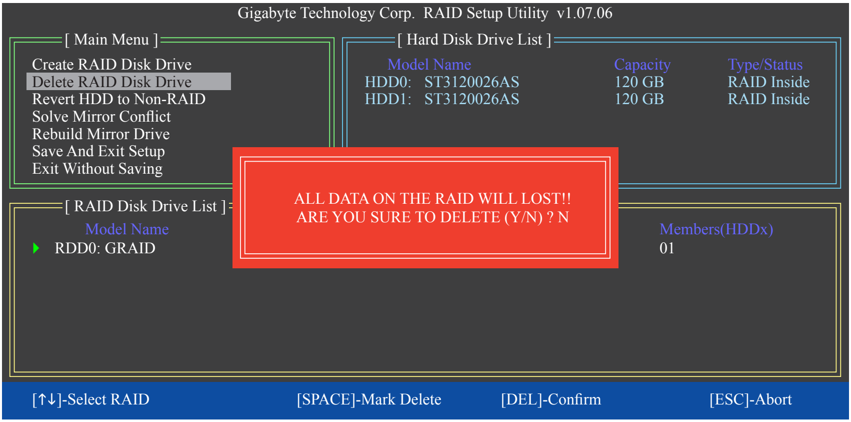
```
       Model Name                                                          Members(HDDx)
RDD0:  GRAID       0-Stripe          240 GB          Normal                01
```

Figure 10

Now, you may proceed to create the SATA RAID/AHCI driver diskette and the installation of the SATA RAID/AHCI driver and operating system.

Delete the RAID Array:

To delete the array, select **Delete RAID Disk Drive** in the main menu and press <Enter>. The selection bar will move to the **RAID Disk Drive List** block. Press the space bar on the array to be deleted; a small triangle will appear to mark the selected array. Press <Delete>. When prompted to confirm your selection (Figure 11), press <Y> to confirm or <N> to cancel.


Gigabyte Technology Corp. RAID Setup Utility v1.07.06
[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
[RAID Disk Drive List]
[↑↓]-Select RAID
[SPACE]-Mark Delete
[DEL]-Confirm
[ESC]-Abort

```
Model Name                      Capacity     Type/Status
HDD0:  ST3120026AS              120 GB       RAID Inside
HDD1:  ST3120026AS              120 GB       RAID Inside
```

```
ALL DATA ON THE RAID WILL LOST!!
ARE YOU SURE TO DELETE (Y/N) ? N
```

```
     Model Name                                                   Members(HDDx)
▶ RDD0: GRAID                                                     01
```

Figure 11

5-1-3 Making a SATA RAID/AHCI Driver Diskette

(Required for AHCI and RAID Mode)

To successfully install operating system onto SATA hard drive(s) that is/are configured to RAID/AHCI mode, you need to install the SATA controller driver during the OS installation. Without the driver, the hard drive may not be recognized during the Windows setup process. First of all, copy the driver for the SATA controller from the motherboard driver disk to a floppy disk. For installing Windows Vista, you also can copy the SATA controller driver from the motherboard driver disk to a USB flash drive. See the instructions below about how to copy the driver in MS-DOS and Windows mode.

In MS-DOS mode:

Prepare a startup disk that has CD-ROM support and a blank formatted floppy disk.

Steps:

1: Boot from the startup disk.

2: Remove the startup disk and insert the prepared floppy disk and the motherboard driver disk (here we assume that the drive letter for your optical drive is D:\).

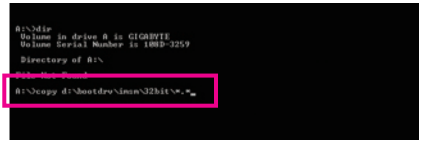
3: At the A:\> prompt, type the following command. Press <Enter> after the command:

- For the Intel P55, type (Figure 1): (Note)

```
A:\>copy d:\bootdrv\imsm\32bit\*.*
```

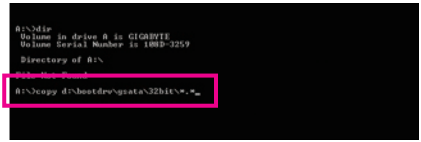
- For the JMB362, type (Figure 2): (Note)

```
A:\>copy d:\bootdrv\gsata\32bit\*.*
```



```
A:\>dir
 Volume in drive A is GIGABYTE
 Volume Serial Number is 10BD-3259

 Directory of A:\

File Not Found

A:\>copy d:\bootdrv\imsm\32bit\*.*_
```

Figure 1



```
A:\>dir
 Volume in drive A is GIGABYTE
 Volume Serial Number is 10BD-3259

 Directory of A:\

File Not Found

A:\>copy d:\bootdrv\gsata\32bit\*.*_
```

Figure 2

In Windows mode:

Steps:

1: Use an alternative system and insert the motherboard driver disk.

2: From your optical drive folder, double click the **Menu.exe** file in the **BootDrv** folder (Figure 3). A Command Prompt window will open similar to that in Figure 4.

3: Insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu and press <Enter>. For example, from the menu in Figure 4,

- For the Intel P55, select **1) Intel Matrix Storage driver for 32bit system** for Windows 32-bit operating system or **2) Intel Matrix Storage driver for 64bit system** for Windows 64-bit.
- For the JMB362, select **3) GIGABYTE GSATA driver for 32bit system** for Windows 32-bit operating system or **4) GIGABYTE GSATA driver for 64bit system** for Windows 64-bit.

Your system will then automatically copy the driver files to the floppy disk. Press any key to exit when finished.

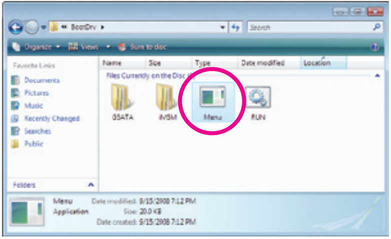
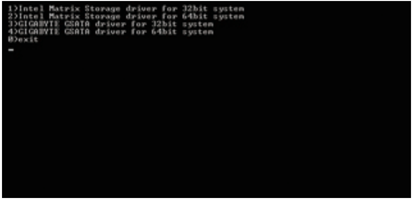

« BootDrv ►
Search
Organize
Views
Burn to disc
Favorite Links
Documents
Pictures
Music
Recently Changed
Searches
Public
Folders
Name
Size
Type
Date modified
Location
Files Currently on the Disc
GSATA
IMSM
Menu
RUN
Menu
Application
Date modified: 9/15/2008 7:12 PM
Size: 20.0 KB
Date created: 9/15/2008 7:12 PM

Figure 3



```
1)Intel Matrix Storage driver for 32bit system
2)Intel Matrix Storage driver for 64bit system
3)GIGABYTE GSATA driver for 32bit system
4)GIGABYTE GSATA driver for 64bit system
0)exit
_
```

Figure 4

(Note) Change the directory from **\32bit** to **\64bit** if you wish to copy the Windows 64-bit driver.

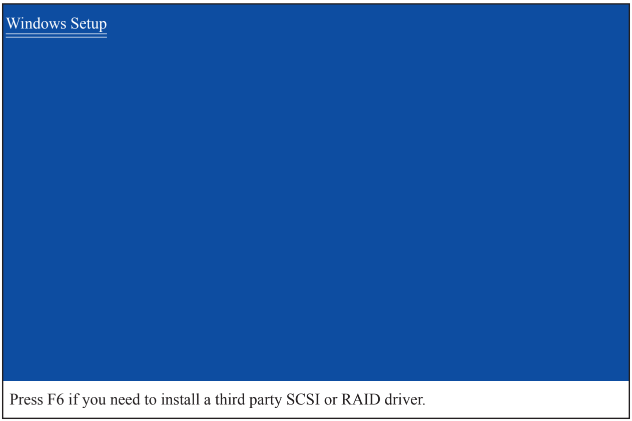
5-1-4 Installing the SATA RAID/AHCI Driver and Operating System

With the SATA RAID/AHCI driver diskette and correct BIOS settings, you are ready to install Windows Vista/ XP onto your hard drive(s). The followings are examples of Windows XP and Vista installation.

A. Installing Windows XP

Step 1:

Restart your system to boot from the Windows XP setup disk and press <F6> as soon as you see the message "Press F6 if you need to install a 3rd party SCSI or RAID driver" (Figure 1). A screen will then appear asking you to specify additional device.


Windows Setup

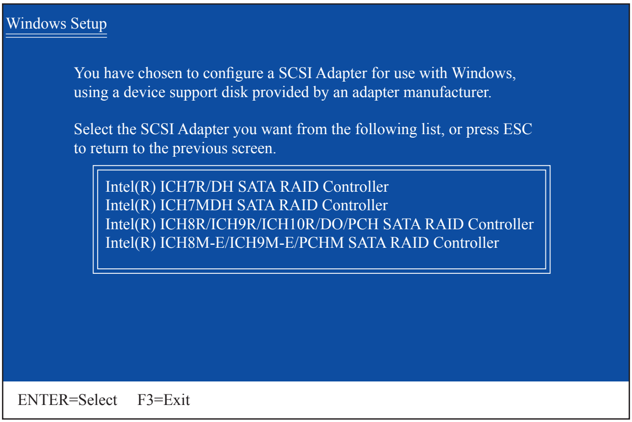
Press F6 if you need to install a third party SCSI or RAID driver.

Figure 1

Step 2:

For the Intel P55:

Insert the floppy disk containing the SATA RAID/AHCI driver and press <S>. Then a controller menu similar to Figure 2 below will appear. Select **Intel(R) ICH8R/ICH9R/ICH10R/DO/PCH SATA RAID Controller** and press <Enter>.


Windows Setup
Intel(R) ICH7R/DH SATA RAID Controller
Intel(R) ICH7MDH SATA RAID Controller
Intel(R) ICH8R/ICH9R/ICH10R/DO/PCH SATA RAID Controller
Intel(R) ICH8M-E/ICH9M-E/PCHM SATA RAID Controller
ENTER=Select
F3=Exit

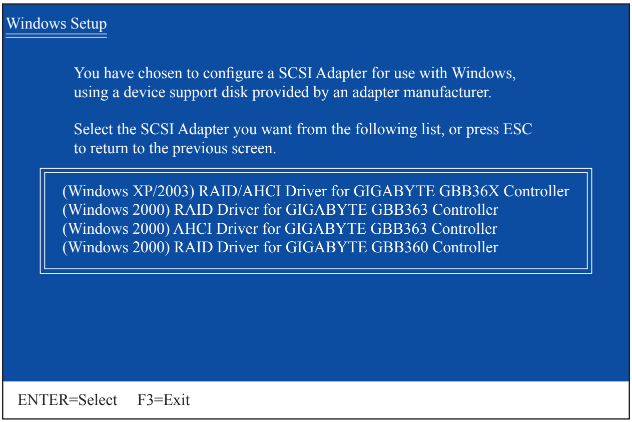
You have chosen to configure a SCSI Adapter for use with Windows, using a device support disk provided by an adapter manufacturer.

Select the SCSI Adapter you want from the following list, or press ESC to return to the previous screen.

Figure 2

For the JMB362:

Insert the floppy disk containing the SATA RAID/AHCI driver and press <S>. Then a controller menu similar to Figure 3 below will appear. Select **(Windows XP/2003) RAID/AHCI Driver for GIGABYTE GBB36X Controller** and press <Enter>.



Windows Setup

You have chosen to configure a SCSI Adapter for use with Windows, using a device support disk provided by an adapter manufacturer.

Select the SCSI Adapter you want from the following list, or press ESC to return to the previous screen.

(Windows XP/2003) RAID/AHCI Driver for GIGABYTE GBB36X Controller
(Windows 2000) RAID Driver for GIGABYTE GBB363 Controller
(Windows 2000) AHCI Driver for GIGABYTE GBB363 Controller
(Windows 2000) RAID Driver for GIGABYTE GBB360 Controller

Figure 3

Step 3:

On the next screen, press <Enter> to continue the driver installation. After the driver installation, you can proceed with the Windows XP installation.

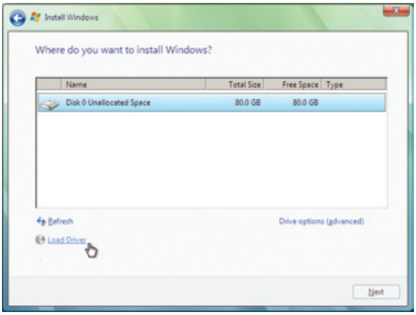
B. Installing Windows Vista

(The procedure below assumes that only one RAID array exists in your system.)

For the Intel P55:

Step 1:

Restart your system to boot from the Windows Vista setup disk and perform standard OS installation steps. When a screen similar to that below appears, select **Load Driver** (Figure 4).


Install Windows
Refresh
Drive options (advanced)
Load Driver
Next

Where do you want to install Windows?

Name	Total Size	Free Space	Type
Disk 0 Unallocated Space	80.0 GB	80.0 GB	

Figure 4

Step 2:

Insert the motherboard driver disk (Method A) or the floppy disk/USB flash drive that contains the driver (Method B), then specify the location of the driver (Figure 5). Note: For users using a SATA optical drive, be sure to copy the driver files from the motherboard driver disk to a USB flash drive before installing Windows Vista (go to the **BootDrv** folder and save the whole **iMSM** folder to the USB flash drive). Then use Method B to load the driver.

Method A:

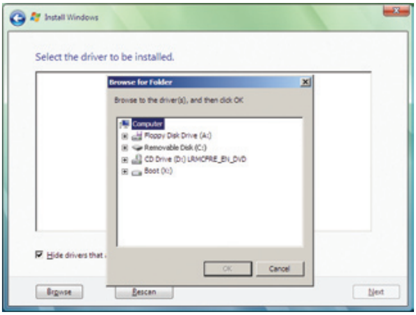
Insert the motherboard driver disk into your system and browse to the following directory:

\BootDrv\iMSM\32Bit

For Windows Vista 64-bit, browse to the **64Bit** folder.

Method B:

Insert the USB flash drive containing the driver files and browse to **\iMSM\32Bit** (for Windows Vista 32-bit) or **\iMSM\64Bit** (for Windows Vista 64-bit).


Install Windows
Browse for Folder
Computer
Floppy Disk Drive (A:)
Removable Disk (C:)
CD Drive (D:) LRMCFRE_EN_DVD
Boot (X:)
OK
Cancel
Browse
Rescan
Next

Select the driver to be installed.

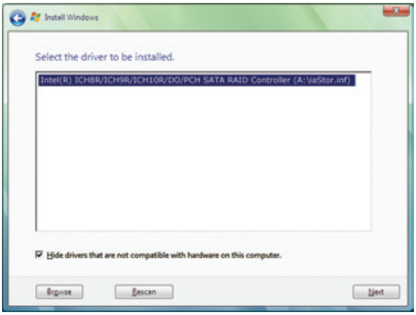
Browse to the driver(s), and then click OK

☑ Hide drivers that

Figure 5

Step 3:

When a screen as shown in Figure 6 appears, select **Intel(R) ICH8R/ICH9R/ICH10R/DO/PCH SATA RAID Controller** and click **Next**.


Install Windows

Select the driver to be installed.

Intel(R) ICH8R/ICH9R/ICH10R/DO/PCH SATA RAID Controller (A:\iaStor.inf)

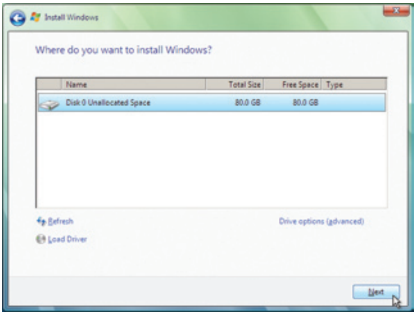
☑ Hide drivers that are not compatible with hardware on this computer.

Browse
Rescan
Next

Figure 6

Step 4:

After the driver is loaded, select the RAID/AHCI drive(s) where you want to install the operating system and then click **Next** to continue the OS installation (Figure 7).


Install Windows

Where do you want to install Windows?

Name	Total Size	Free Space	Type
Disk 0 Unallocated Space	80.0 GB	80.0 GB	

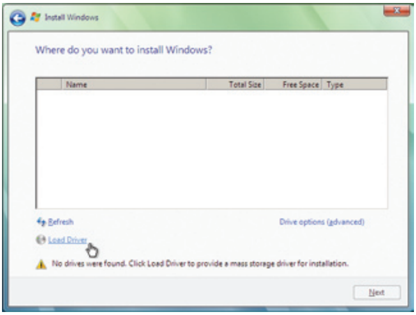
Refresh
Load Driver
Drive options (advanced)
Next

Figure 7

For the JMB362:

Step 1:

Restart your system to boot from the Windows Vista setup disk and perform standard OS installation steps. When a screen similar to that below appears (RAID/AHCI hard drive(s) will not be detected at this stage), select **Load Driver** (Figure 8).



Where do you want to install Windows?

No drives were found. Click Load Driver to provide a mass storage driver for installation.

Install Windows
Name
Total Size
Free Space
Type
Refresh
Drive options (advanced)
Load Driver
Next

Figure 8

Step 2:

Insert the motherboard driver disk (Method A) or the floppy disk/USB flash drive that contains the SATA RAID/AHCI driver (Method B), then specify the location of the driver (Figure 9). Note: For users using a SATA optical drive, be sure to copy the driver files from the motherboard driver disk to a USB flash drive before installing Windows Vista (go to the **BootDrv** folder and save the whole **GSATA** folder to the USB flash drive). Then use Method B to load the driver.

Method A:

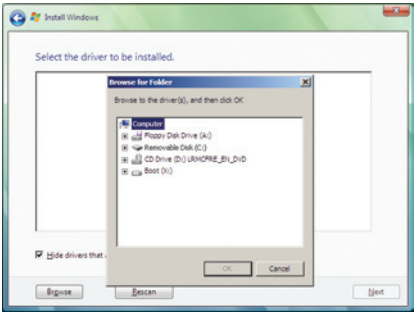
Insert the motherboard driver disk into your system and browse to the following directory:

\BootDrv\GSATA\32Bit

For Windows Vista 64-bit, browse to the **64Bit** folder.

Method B:

Insert the USB flash drive containing the driver files and browse to **\GSATA\32Bit** (for Windows Vista 32-bit) or **\GSATA\64Bit** (for Windows Vista 64-bit).



Select the driver to be installed.

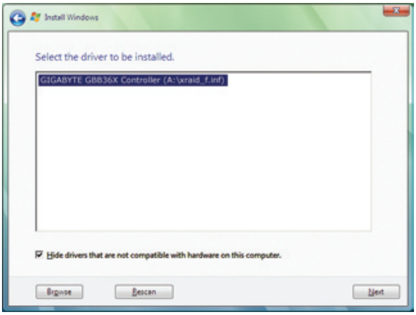
Browse to the driver(s), and then click OK

Install Windows
Browse for Folder
Computer
Floppy Disk Drive (A:)
Removable Disk (C:)
CD Drive (D:) LRMCFRE_EN_DVD
Boot (X:)
☑ Hide drivers that
OK
Cancel
Browse
Rescan
Next

Figure 9

Step 3:

When a screen as shown in Figure 10 appears, select **GIGABYTE GBB36X Controller** and click **Next**.


Install Windows
Browse
Rescan
Next

Select the driver to be installed.

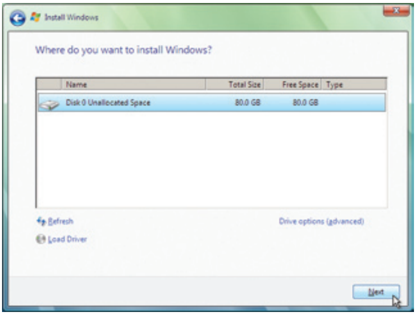
GIGABYTE GBB36X Controller (A:\xraid_f.inf)

☑ Hide drivers that are not compatible with hardware on this computer.

Figure 10

Step 4:

After the driver is loaded, select the RAID/AHCI drive(s) where you want to install the operating system and then click **Next** to continue the OS installation (Figure 11).


Install Windows
Refresh
Load Driver
Drive options (advanced)
Next

Where do you want to install Windows?

Name	Total Size	Free Space	Type
Disk 0 Unallocated Space	80.0 GB	80.0 GB	

Figure 11

C. Rebuilding an Array

Rebuilding is the process of restoring data to a hard drive from other drives in the array. Rebuilding applies only to fault-tolerant arrays such as RAID 1, RAID 5 or RAID 10 arrays. The procedures below assume a new drive is added to replace a failed drive to rebuild a RAID 1 array. (Note: The new drive must have equal or greater capacity than the old one.)

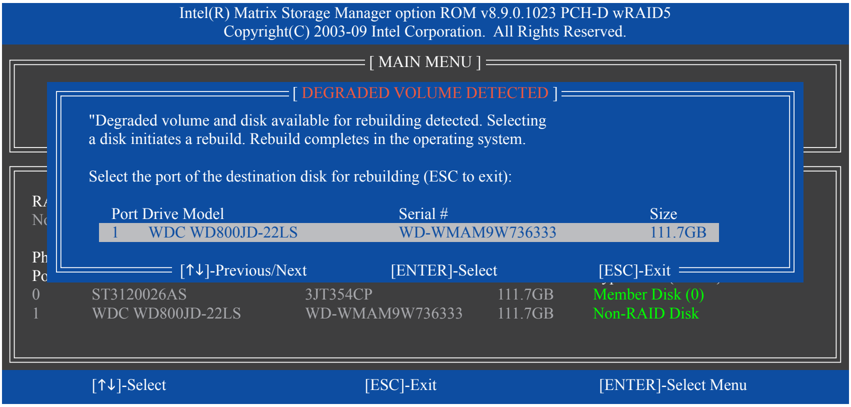
For the Intel P55:

Turn off your computer and replace the failed hard drive with a new one. Restart your computer.

- **Enabling Automatic Rebuild**

Step 1:

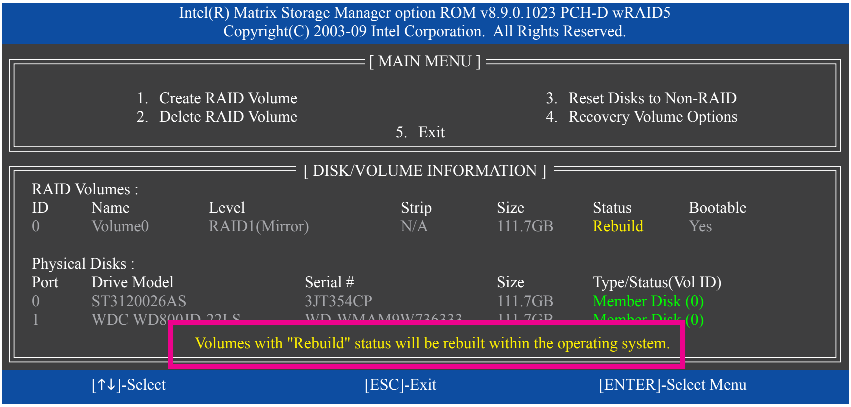
When the message "Press <Ctrl-I> to enter Configuration Utility" appears, press <Ctrl> + <I> to enter the RAID Configuration Utility. The following screen appears after you enter the RAID Configuration Utility.



```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

                         [ MAIN MENU ]

                 [ DEGRADED VOLUME DETECTED ]
  "Degraded volume and disk available for rebuilding detected. Selecting
  a disk initiates a rebuild. Rebuild completes in the operating system.

  Select the port of the destination disk for rebuilding (ESC to exit):

     Port Drive Model               Serial #                    Size
     1    WDC WD800JD-22LS          WD-WMAM9W736333             111.7GB

      [↑↓]-Previous/Next       [ENTER]-Select        [ESC]-Exit
RA
No

Ph
Po
0      ST3120026AS            3JT354CP             111.7GB    Member Disk (0)
1      WDC WD800JD-22LS       WD-WMAM9W736333      111.7GB    Non-RAID Disk

      [↑↓]-Select               [ESC]-Exit             [ENTER]-Select Menu
```

Step 2:

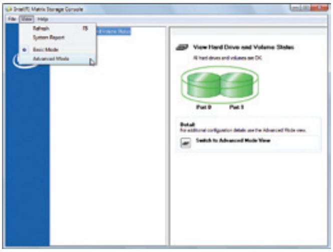
Select the new hard drive to add into the array to be rebuilt and press <Enter>. The following screen appears, indicating that an automatic rebuild will be performed after you enter the operating system (look for the **Intel Storage Console** icon in the notification area, which will show that a RAID volume is being rebuilt). If you do not enable automatic rebuild on this stage, you have to manually rebuild the array in the operating system (see the next page for more details).



```
Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
Copyright(C) 2003-09 Intel Corporation.  All Rights Reserved.

                         [ MAIN MENU ]
        1.  Create RAID Volume                3.  Reset Disks to Non-RAID
        2.  Delete RAID Volume                4.  Recovery Volume Options
                              5.  Exit

                   [ DISK/VOLUME INFORMATION ]
RAID Volumes :
ID     Name        Level              Strip    Size       Status    Bootable
0      Volume0     RAID1(Mirror)      N/A      111.7GB    Rebuild   Yes

Physical Disks :
Port   Drive Model            Serial #             Size       Type/Status(Vol ID)
0      ST3120026AS            3JT354CP             111.7GB    Member Disk (0)
1      WDC WD800JD-22LS       WD-WMAM9W736333      111.7GB    Member Disk (0)
     Volumes with "Rebuild" status will be rebuilt within the operating system.

      [↑↓]-Select               [ESC]-Exit             [ENTER]-Select Menu
```

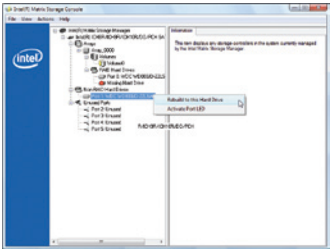
- **Performing the Rebuild in the Operating System**

While in the operating system, make sure the chipset driver has been installed from the motherboard driver disk. Then launch the Intel Matrix Storage Console from **All Programs** in the **Start** menu.


Refresh
System Report
Basic Mode
Advanced Mode
View Hard Drive and Volume Status
Port 0
Port 1
Switch to Advanced Mode View

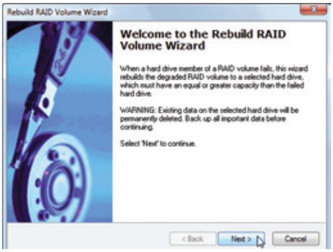
Step 1:

On the **View** menu of the Intel Matrix Storage Console, select **Advanced Mode** for a more detailed view of the storage device information.


intel
Rebuild to this Hard Drive
Activate Port LED

Step 2:

The new hard drive appears under **Non-RAID Hard Drive**. Right-click on the new hard drive and select **Rebuild to this Hard Drive**.



Rebuild RAID Volume Wizard

Welcome to the Rebuild RAID Volume Wizard

When a hard drive member of a RAID volume fails, this wizard rebuilds the degraded RAID volume to a selected hard drive, which must have an equal or greater capacity than the failed hard drive.

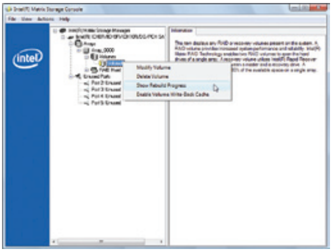
WARNING: Existing data on the selected hard drive will be permanently deleted. Back up all important data before continuing.

Select 'Next' to continue.

< Back
Next >
Cancel

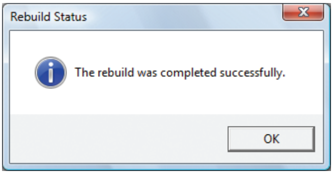
Step 3:

Click **Next** when the **Rebuild RAID Volume Wizard** appears. Follow the on-screen instructions to proceed.


intel
Modify Volume
Delete Volume
Show Rebuild Progress

Step 4:

To check the rebuild status during the rebuild process, right-click on the rebuild volume and select **Show Rebuild Progress**.

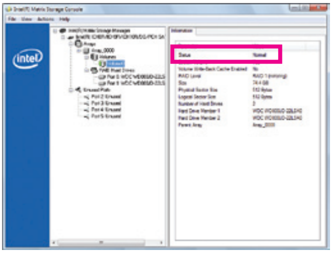


Rebuild Status

The rebuild was completed successfully.

Step 5:

When the message "The rebuild was completed successfully," appears, click **OK** to complete.


intel
Status
Normal

Step 6:

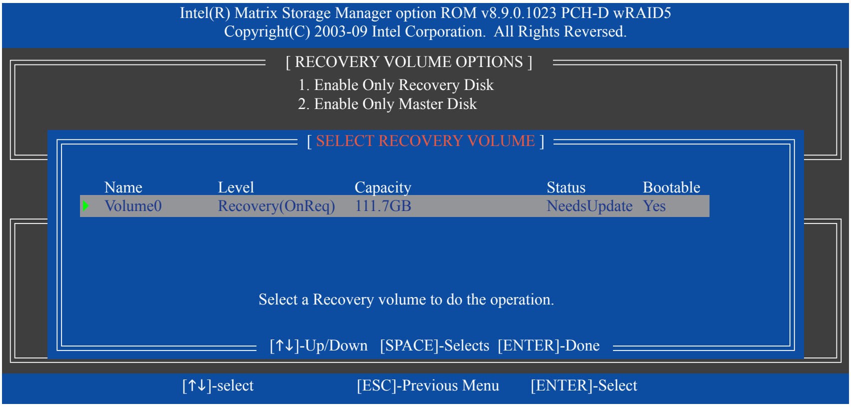
After the RAID 1 volume rebuilding, click the volume and its status in the information pane will display as **Normal**.

- **Restoring the Master Drive to a Previous State (for Recovery Volume only)**

When two hard drives are set to Recovery Volume in Update on Request mode, you can restore the master drive data to the last backup state when needed. For example, in case the master drive detects a virus, you can restore the recovery drive data to the master drive.

Step 1:

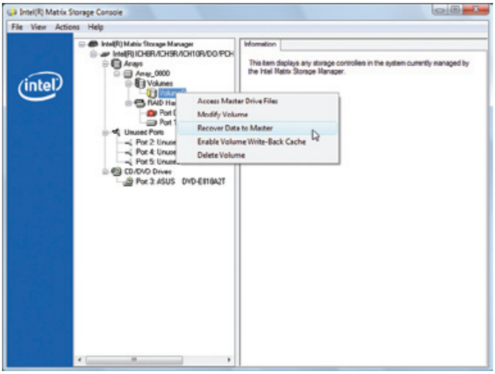
Select **4. Recovery Volume Options** in the **MAIN MENU** of the P55 RAID Configuration Utility. On the **RECOVERY OPTIONS** menu, select **Enable Only Recovery Disk** to show the recovery drive in the operating system. Follow the on-screen instructions to complete and exit the RAID Configuration Utility.



```
         Intel(R) Matrix Storage Manager option ROM v8.9.0.1023 PCH-D wRAID5
              Copyright(C) 2003-09 Intel Corporation.  All Rights Reversed.

                          [ RECOVERY VOLUME OPTIONS ]
                            1. Enable Only Recovery Disk
                            2. Enable Only Master Disk

                            [ SELECT RECOVERY VOLUME ]

     Name          Level              Capacity                 Status        Bootable
   ▶ Volume0       Recovery(OnReq)    111.7GB                  NeedsUpdate   Yes



                     Select a Recovery volume to do the operation.

                  [↑↓]-Up/Down   [SPACE]-Selects  [ENTER]-Done

            [↑↓]-select               [ESC]-Previous Menu       [ENTER]-Select
```

Step 2:

Enter the operating system, launch the Intel Matrix Storage Console from **All Programs** in the **Start** menu, and select **Advanced Mode**. Right-click on the recovery volume and select **Recover Data to Master**.

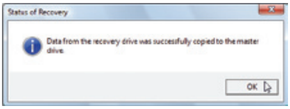


Intel(R) Matrix Storage Console
File
View
Actions
Help
intel
Intel(R) Matrix Storage Manager
Intel(R) ICH8R/ICH9R/ICH10R/DO/PCH
Arrays
Array_0000
Volumes
Volume0
RAID Ha
Port 0
Port 1
Unused Ports
Port 2: Unuse
Port 4: Unuse
Port 5: Unuse
CD/DVD Drives
Port 3: ASUS DVD-E818A2T
Information
Access Master Drive Files
Modify Volume
Recover Data to Master
Enable Volume Write-Back Cache
Delete Volume

This item displays any storage controllers in the system currently managed by the Intel Matrix Storage Manager.

Step 3:

To check the recovery status, right-click on the recovery volume and select **Show Recovery Progress**. When a dialog box indicating that the recovery is completed appears, click **OK** to complete.



Status of Recovery
OK

Data from the recovery drive was successfully copied to the master drive.

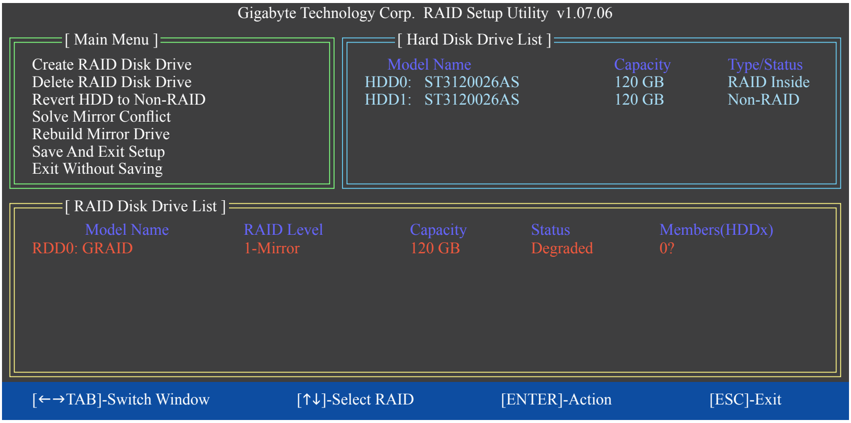
For the JMB362:

Turn off your computer and replace the failed hard drive with a new one. Use either the RAID setup utility or the GIGABYTE RAID CONFIGURER utility in the operating system to perform the rebuild.

- **Rebuilding with the RAID setup utility**

Step 1:

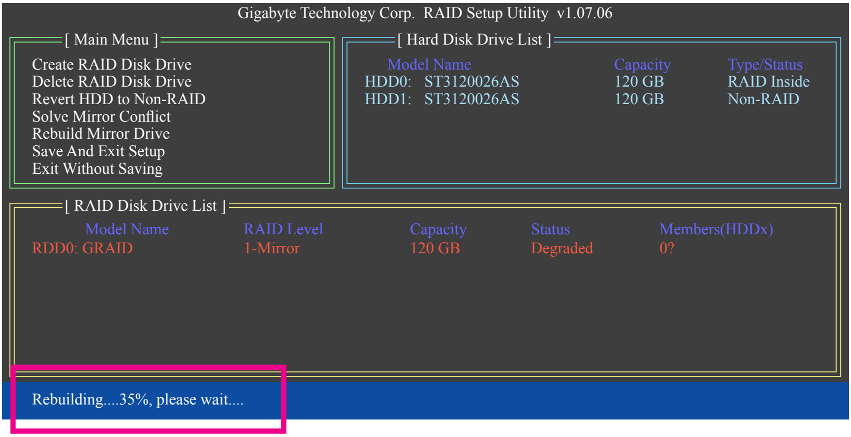
When the message "Press <Ctrl-G> to enter RAID Setup Utility" appears, press <Ctrl> + <G> to enter the utility. In the **Main Menu** block, select **Rebuild Mirror Drive** and press <Enter>. The selection bar will move to the degraded array. Press <Enter> again.



```
                 Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06
[ Main Menu ]                          [ Hard Disk Drive List ]
  Create RAID Disk Drive                   Model Name             Capacity    Type/Status
  Delete RAID Disk Drive                 HDD0:  ST3120026AS       120 GB      RAID Inside
  Revert HDD to Non-RAID                 HDD1:  ST3120026AS       120 GB      Non-RAID
  Solve Mirror Conflict
  Rebuild Mirror Drive
  Save And Exit Setup
  Exit Without Saving
[ RAID Disk Drive List ]
       Model Name        RAID Level        Capacity      Status       Members(HDDx)
  RDD0: GRAID            1-Mirror          120 GB        Degraded     0?

  [←→TAB]-Switch Window      [↑↓]-Select RAID      [ENTER]-Action      [ESC]-Exit
```

Step 2:

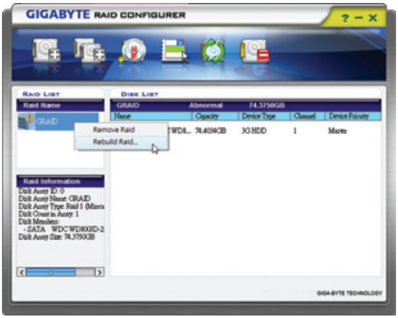
The selection bar will then move to new hard drive in the **Hard Disk Drive List** block. Press <Enter> to start the RAID rebuilding process. The rebuilding progress is displayed at the bottom of the screen. When done, the status of the array will display as **Normal**.



```
                 Gigabyte Technology Corp.  RAID Setup Utility  v1.07.06
[ Main Menu ]                          [ Hard Disk Drive List ]
  Create RAID Disk Drive                   Model Name             Capacity    Type/Status
  Delete RAID Disk Drive                 HDD0:  ST3120026AS       120 GB      RAID Inside
  Revert HDD to Non-RAID                 HDD1:  ST3120026AS       120 GB      Non-RAID
  Solve Mirror Conflict
  Rebuild Mirror Drive
  Save And Exit Setup
  Exit Without Saving
[ RAID Disk Drive List ]
       Model Name        RAID Level        Capacity      Status       Members(HDDx)
  RDD0: GRAID            1-Mirror          120 GB        Degraded     0?

  Rebuilding....35%, please wait....
```

- **Rebuilding in the operating system**

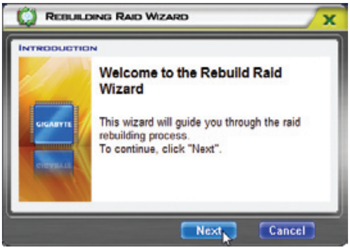
Make sure the JMB362 SATA controller driver has been installed from the motherboard driver disk. Launch the GIGABYTE RAID CONFIGURER from **All Programs** in the **Start** menu.


GIGABYTE RAID CONFIGURER
? – X
RAID LIST
Raid Name
GRAID
Remove Raid
Rebuild Raid...
DISK LIST
GRAID
Abnormal
74.3750GB
Name
Capacity
Device Type
Channel
Device Priority
WD8... 74.4034GB 3G HDD 1 Master
Raid Information
GIGA-BYTE TECHNOLOGY

Disk Array ID: 0
Disk Array Name: GRAID
Disk Array Type: Raid 1 (Mirro
Disk Count in Array: 1
Disk Members:
- SATA WDC WD800JD-2
Disk Array Size: 74.3750GB

Step 1:

In the GIGABYTE RAID CONFIGURER screen, right-click on the array to be rebuilt in the **RAID LIST** block. Select **Rebuild Raid**. (Or click the **Rebuild** icon in the tool bar.)

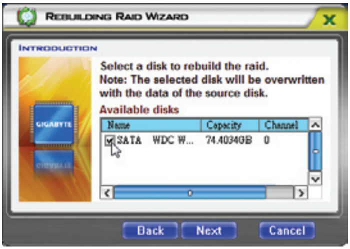

REBUILDING RAID WIZARD
X
INTRODUCTION
GIGABYTE
Next
Cancel

Welcome to the Rebuild Raid Wizard

This wizard will guide you through the raid rebuilding process.
To continue, click "Next".

Step 2:

When the Rebuilding RAID Wizard appears, click **Next**.

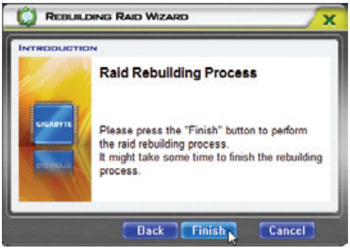

REBUILDING RAID WIZARD
X
INTRODUCTION
GIGABYTE
Available disks
Name
Capacity
Channel
Back
Next
Cancel

Select a disk to rebuild the raid.
Note: The selected disk will be overwritten with the data of the source disk.

☑ SATA WDC W... 74.4034GB 0

Step 3:

Select a drive to rebuild the array and click **Next**.

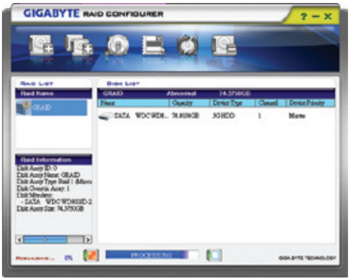

REBUILDING RAID WIZARD
X
INTRODUCTION
GIGABYTE
Back
Finish
Cancel

Raid Rebuilding Process

Please press the "Finish" button to perform the raid rebuilding process.
It might take some time to finish the rebuilding process.

Step 4:

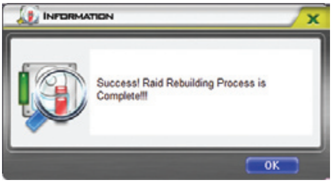
Click **Finish** to start the RAID rebuilding process.


GIGABYTE RAID CONFIGURER
? – X
RAID LIST
Raid Name
GRAID
DISK LIST
GRAID
Abnormal
74.3750GB
Name
Capacity
Device Type
Channel
Device Priority
SATA WDC WD8... 74.4034GB 3G HDD 1 Master
Raid Information
REBUILDING...
0%
PROCESSING
GIGA-BYTE TECHNOLOGY

Disk Array ID: 0
Disk Array Name: GRAID
Disk Array Type: Raid 1 (Mirro
Disk Count in Array: 1
Disk Members:
- SATA WDC WD800JD-2
Disk Array Size: 74.3750GB

Step 5:

The rebuilding progress is displayed at the bottom of the screen.


INFORMATION
X
OK

Success! Raid Rebuilding Process is Complete!!!

Step 6:

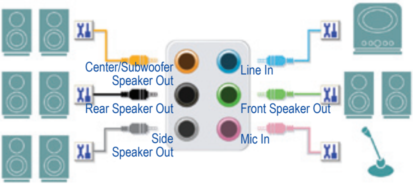
When finished, restart your system.

5-2 Configuring Audio Input and Output

5-2-1 Configuring 2/4/5.1/7.1-Channel Audio

The motherboard provides six audio jacks on the back panel which support 2/4/5.1/7.1-channel (Note) audio. The picture to the right shows the default audio jack assignments.

The integrated HD (High Definition) audio provides jack retasking capability that allows the user to change the function for each jack through the audio driver.



For example, in a 4-channel audio configuration, if a Side speaker is plugged into the default Center/Subwoofer speaker out jack, you can retask the Center/Subwoofer speaker out jack to be Side speaker out.

- To install a microphone, connect your microphone to the Mic in jack and manually configure the jack for microphone functionality.
- Audio signals will be present on both of the front and back panel audio connections simultaneously. If you want to mute the back panel audio (only supported when using an HD front panel audio module), refer to instructions on the next page.

High Definition Audio (HD Audio)

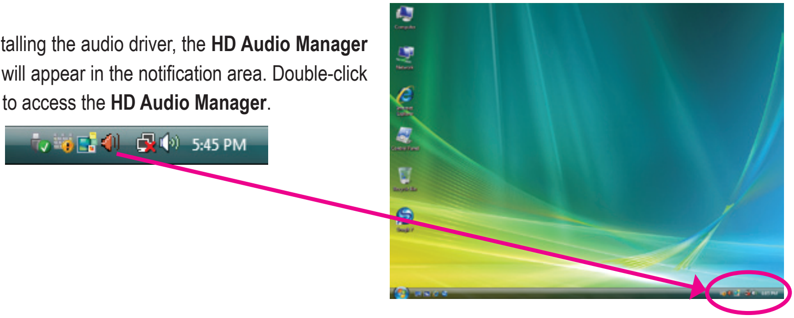
HD Audio includes multiple high quality digital-to-analog converters (DACs) that support 44.1KHz/48KHz/96KHz/192KHz sampling rate. HD Audio features multistreaming capabilities that allow multiple audio streams (in and out) to be simultaneously processed. For example, users can listen to MP3 music, have an Internet chat, make a telephone call over the Internet, and etc. all at the same time.

A. Configuring Speakers

(The following instructions use Windows Vista as the example operating system.)

Step 1:

After installing the audio driver, the **HD Audio Manager** icon 🔊 will appear in the notification area. Double-click the icon to access the **HD Audio Manager**.

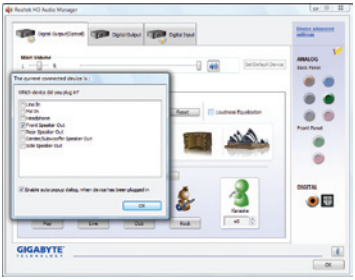


(Note) 2/4/5.1/7.1-Channel Audio Configurations:

Refer to the following for multi-channel speaker configurations.

- 2-channel audio: Headphone or Line out.
- 4-channel audio: Front speaker out and Side speaker out.
- 5.1-channel audio: Front speaker out, Side speaker out, and Center/Subwoofer speaker out.
- 7.1-channel audio: Front speaker out, Rear speaker out, Center/Subwoofer speaker out, and Side speaker out.

Step 2:
Connect an audio device to an audio jack. The **The current connected device is** dialog box appears. Select the device according to the type of device you connect. Then click **OK**.


Realtek HD Audio Manager
Digital Output(Optical)
Digital Output
Digital Input
Main Volume
GIGABYTE
OK

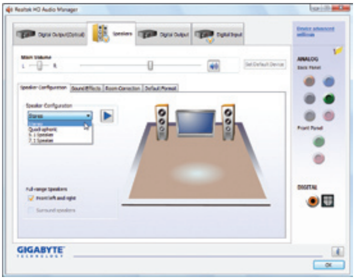
The current connected device is :

Which device did you plug in?

- ☐ Line In
- ☐ Mic In
- ☐ Headphone
- ☑ Front Speaker Out
- ☐ Rear Speaker Out
- ☐ Center/Subwoofer Speaker Out
- ☐ Side Speaker Out

☑ Enable auto popup dialog, when device has been plugged in

Step 3:
On the **Speakers** screen, click the **Speaker Configuration** tab. In the **Speaker Configuration** list, select **Stereo**, **Quadraphonic**, **5.1 Speaker**, or **7.1 Speaker** according to the type of speaker configuration you wish to set up. Then the speaker setup is completed.

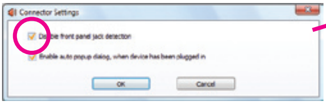

Realtek HD Audio Manager
Speakers
Main Volume
Speaker Configuration
Stereo
Quadraphonic
5.1 Speaker
7.1 Speaker
GIGABYTE
OK

B. Configuring Sound Effect

You may configure an audio environment on the **Sound Effects** tab.

C. Activating an AC'97 Front Panel Audio Module

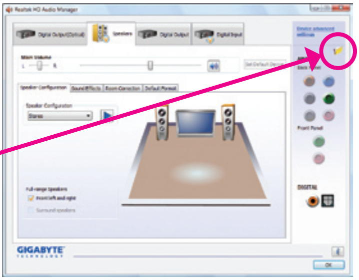
If your chassis provides an AC'97 front panel audio module, to activate the AC'97 functionality, click the tool icon on the **Speaker Configuration** tab. On the **Connector Settings** dialog box, select the **Disable front panel jack detection** check box. Click **OK** to complete.



Connector Settings

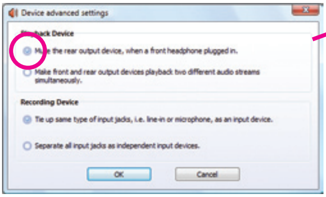
☑ Disable front panel jack detection

☑ Enable auto popup dialog, when device has been plugged in


Realtek HD Audio Manager
Speakers
Main Volume
Speaker Configuration
Stereo
GIGABYTE
OK

D. Muting the Back Panel Audio (For HD Audio Only)

Click **Device advanced settings** on the top right corner on the **Speaker Configuration** tab to open the **Device advanced settings** dialog box. Select the **Mute the rear output device, when a front headphone plugged in** check box. Click **OK** to complete.



Device advanced settings

Playback Device

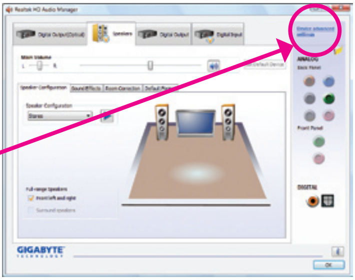
● Mute the rear output device, when a front headphone plugged in.

○ Make front and rear output devices playback two different audio streams simultaneously.

Recording Device

● Tie up same type of input jacks, i.e. line-in or microphone, as an input device.

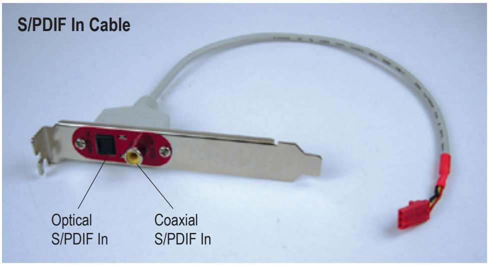
○ Separate all input jacks as independent input devices.


Realtek HD Audio Manager
Device advanced settings
Speakers
Main Volume
Speaker Configuration
Stereo
GIGABYTE
OK

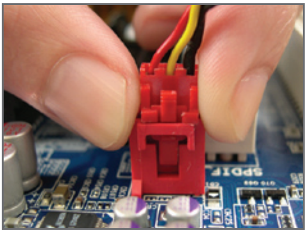
5-2-2 Configuring S/PDIF In/Out

A. S/PDIF In

The S/PDIF In cable (optional) allows you to input digital audio signals to the computer for audio processing.


S/PDIF In Cable
Optical S/PDIF In
Coaxial S/PDIF In

1. Installing the S/PDIF In Cable:

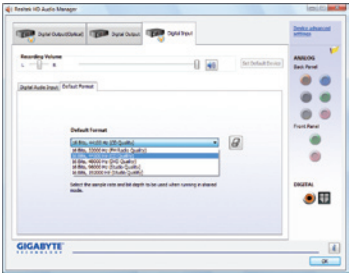


Step 1:
First, attach the connector at the end of the cable to the SPDIF_I header on your motherboard.

Step 2:
Secure the metal bracket to the chassis back panel with a screw.

2. Configuring S/PDIF In:

On the **Digital Input** screen, click the **Default Format** tab to select the default format. Click **OK** to complete.

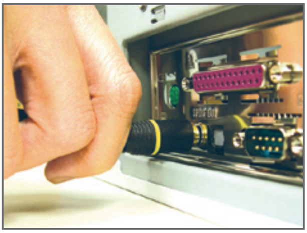

Recording Volume
Default Format
ANALOG
Back Panel
Front Panel
DIGITAL
GIGABYTE
OK

(Note) The actual locations of the S/PDIF In and S/PDIF Out connectors may differ by model.

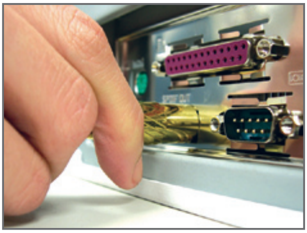
B. S/PDIF Out

The S/PDIF Out jacks can transmit audio signals to an external decoder for decoding to get the best audio quality.

1. Connecting a S/PDIF Out Cable:



S/PDIF Coaxial Cable

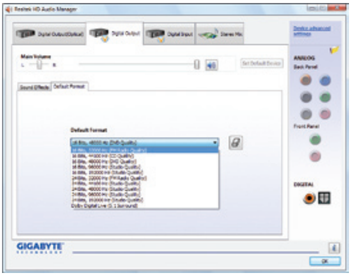


S/PDIF Optical Cable

Connect a S/PDIF coaxial cable or a S/PDIF optical cable (either one) to an external decoder for transmitting the S/PDIF digital audio signals.

2. Configuring S/PDIF Out:

On the **Digital Output** screen, click the **Default Format** tab and then select the sample rate and bit depth. Click **OK** to complete.

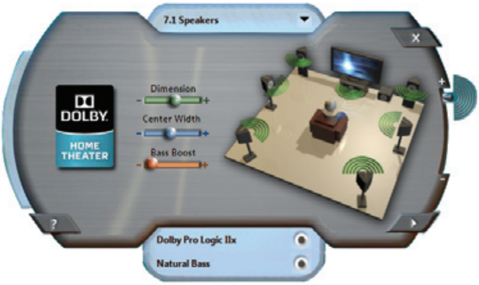

Realtek HD Audio Manager
Digital Output(Optical)
Digital Output
Digital Input
Stereo Mix
Main Volume
Set Default Device
Sound Effects
Default Format
Default Format
ANALOG
Back Panel
Front Panel
DIGITAL
GIGABYTE
OK

(Note) If you have connected a S/PDIF digital audio cable (provided by expansion cards) to the 2-pin S/PDIF Out header (SPDIF_O) on the motherboard to output digital audio to your expansion card, you can enter the **Digital Output(Optical)** screen to configure further settings, such as the sample rate and bit depth.

5-2-3 Enabling the Dolby Home Theater Function

Before Dolby Home Theater is enabled, you get only 2-channel playback output (from the front speakers) when playing 2-channel stereo sources. You must play 4-, 5.1-, or 7.1- channel content to get 4-, 5.1-, or 7.1- channel audio effects. With Dolby Home Theater enabled, 2-channel stereo content will be transformed into multi-channel audio, creating a virtual surround sound environment (Note).

Install the **Dolby GUI Software** driver from the motherboard driver disk. Click the **Start** icon. Point to **All Programs**, **Dolby Control Center** to access the utility.
(The following illustration demonstrates a 7.1-speaker configuration as an example.)



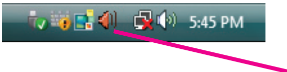
1. **Dolby Pro Logic IIx** ●:
   Click Dolby Pro Logic IIx. The system will expand 2-channel audio for a 7.1-channel surround sound playback.

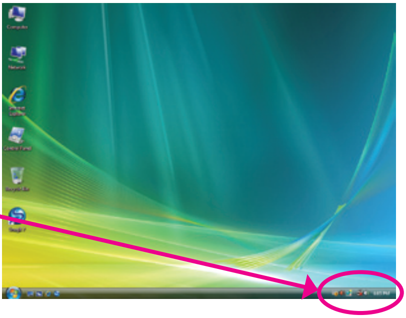
2. **Natural Bass** ●:
   Click Natural Bass to enable speaker bass effect.

(Note) When Dolby Digital Live is enabled, only digital audio output (S/PDIF) is working, and you will not hear any sound from analog speakers or headphone.

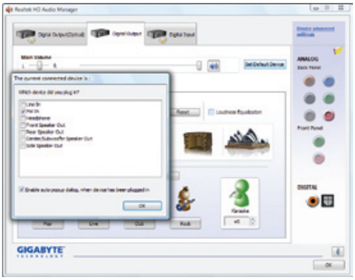
5-2-4 Configuring Microphone Recording

Step 1:
After installing the audio driver, the **HD Audio Manager** icon will appear in the notification area. Double-click the icon to access the **HD Audio Manager**.

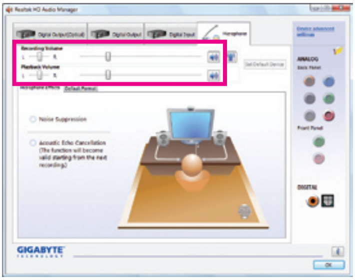




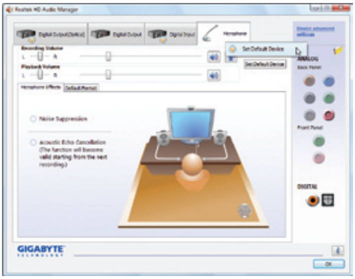
Step 2:
Connect your microphone to the Mic in jack (pink) on the back panel or the Mic in jack (pink) on the front panel. Then configure the jack for microphone functionality.
Note: The microphone functions on the front panel and back panel cannot be used at the same time.



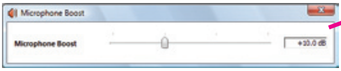
Step 3:
Go to the **Microphone** screen. Do not mute the recording volume, or you'll not be able to record the sound. To hear the sound being recorded during the recording process, do not mute the playback volume. It is recommended that you set the volumes at a middle level.

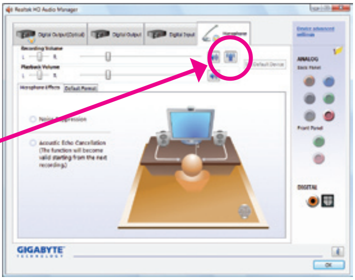


If you want to change the current sound input default device to microphone, right-click on **Microphone** and select **Set Default Device**.

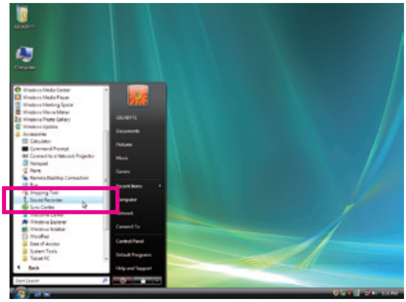


Step 4:
To raise the recording and playback volume for the microphone, click the **Microphone Boost** icon on the right of the **Recording Volume** slider and set the Microphone Boost level.


Microphone Boost
Microphone Boost
+10.0 dB


Realtek HD Audio Manager
Recording Volume
Playback Volume
Microphone Effects
Default Format
Noise Suppression
Acoustic Echo Cancellation
ANALOG
Back Panel
Front Panel
DIGITAL
GIGABYTE
OK

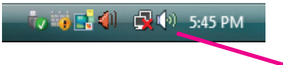
Step 5:
After completing the settings above, click **Start**, point to **All Programs**, point to **Accessories**, and then click **Sound Recorder** to begin the sound recording.

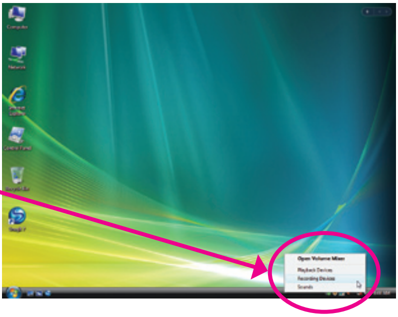


* Enabling Stereo Mix

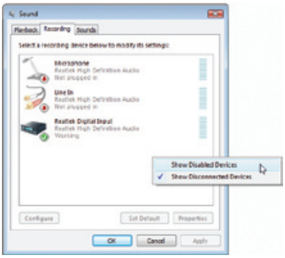
If the HD Audio Manager does not display the recording device you wish to use, refer to the steps below. The following steps explain how to enable Stereo Mix (which may be needed when you want to record sound from your computer).

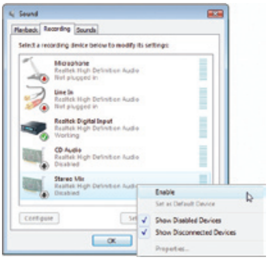
Step 1:
Locate the **Volume** icon in the notification area and right-click on this icon. Select **Recording Devices**.




Open Volume Mixer
Playback Devices
Recording Devices
Sounds

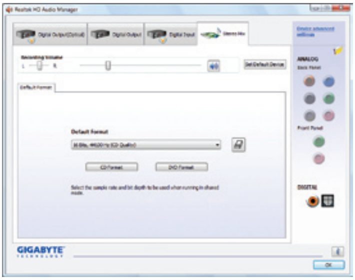
Step 2:
On the **Recording** tab, right-click on an empty space and select **Show Disabled Devices**.


Sound
Playback
Recording
Sounds
Select a recording device below to modify its settings:
Microphone
Realtek High Definition Audio
Not plugged in
Line In
Realtek High Definition Audio
Not plugged in
Realtek Digital Input
Realtek High Definition Audio
Working
Show Disabled Devices
Show Disconnected Devices
Configure
Set Default
Properties
OK
Cancel
Apply


Sound
Playback
Recording
Sounds
Select a recording device below to modify its settings:
Microphone
Realtek High Definition Audio
Not plugged in
Line In
Realtek High Definition Audio
Not plugged in
Realtek Digital Input
Realtek High Definition Audio
Working
CD Audio
Realtek High Definition Audio
Disabled
Stereo Mix
Realtek High Definition Audio
Disabled
Enable
Set as Default Device
✓ Show Disabled Devices
✓ Show Disconnected Devices
Properties...
Configure
OK

Step 3:

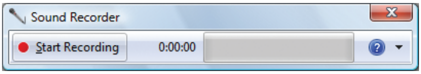
When the **Stereo Mix** item appears, right-click on this item and select **Enable**. Then set it as the default device.


Realtek HD Audio Manager
Stereo Mix
Recording Volume
Set Default Device
Default Format
CD Format
DVD Format
ANALOG
DIGITAL
GIGABYTE
OK

Step 4:

Now you can access the **HD Audio Manager** to configure **Stereo Mix** and use **Sound Recorder** to record the sound.

5-2-5 Using the Sound Recorder


Sound Recorder
● Start Recording
0:00:00

A. Recording Sound

1. Make sure you have connected the sound input device (e.g. microphone) to the computer.
2. To record the audio, click the **Start Recording** button ● Start Recording.
3. To stop recording audio, click the **Stop Recording** button ■ Stop Recording.

Be sure to save the recorded audio file upon completion.

B. Playing the Recorded Sound

You can play your recording in a digital media player program that supports your audio file format.

5-3 Troubleshooting

5-3-1 Frequently Asked Questions

To read more FAQs for your motherboard, please go to the Support&Downloads\Motherboard\FAQ page on GIGABYTE's website.

Q: In the BIOS Setup program, why are some BIOS options missing?

A: Some advanced options are hidden in the BIOS Setup program. Press <Delete> to enter BIOS Setup during the POST. In the Main Menu, press <Ctrl>+<F1> to show the advanced options.

Q: Why is the light of my keyboard/optical mouse still on after the computer shuts down?

A: Some motherboards provide a small amount of standby power after the computer shuts down and that's why the light is still on.

Q: How do I clear the CMOS values?

A: For motherboards that have a CMOS_SW button, press this button to clear the CMOS values (before doing this, please turn off the computer and unplug the power cord). For motherboards that have a clearing CMOS jumper, refer to the instructions on the CLR_CMOS jumper in Chapter 1 to short the jumper to clear the CMOS values. If your board doesn't have this jumper, refer to the instructions on the motherboard battery in Chapter 1. You can temporarily remove the battery from the battery holder to stop supplying power to the CMOS, which will clear the CMOS values after about one minute.

Q: Why do I still get a weak sound even though I have turned my speaker to the maximum volume?

A: Make sure your speaker is equipped with an internal amplifier. If not, try a speaker with power/amplifier.

Q: Why cannot I install the onboard HD audio driver successfully? (For Windows XP only)

A: Step 1: First, make sure Service Pack 1 or Service Pack 2 has been installed (check in My Computer > Properties > General > System). If not, please update it from Microsoft's website. Then make sure the Microsoft UAA Bus Driver for High Definition Audio has been installed successfully (check in My Computer > Properties > Hardware > Device Manager > System Devices).

Step 2: Check if **Audio Device on High Definition Audio Bus** or **Unknown device** is present in **Device Manager** or **Sound, video, and game controllers**. If yes, please disable this device. (If not, skip this step.)

Step 3: Then go back to My Computer > Properties > Hardware > Device Manager > System devices and right-click on **Microsoft UAA Bus Driver for High Definition Audio** and select **Disable** and **Uninstall**.

Step 4: In **Device Manager**, right-click on the computer name and select **Scan for hardware changes**. When the **Add New Hardware Wizard** appears, click **Cancel**. Then install the onboard HD audio driver from the motherboard driver disk or download the audio driver from GIGABYTE's website to install.

For more details, go to the Support&Downloads\Motherboards\FAQ page on our website and search for "onboard HD audio driver."

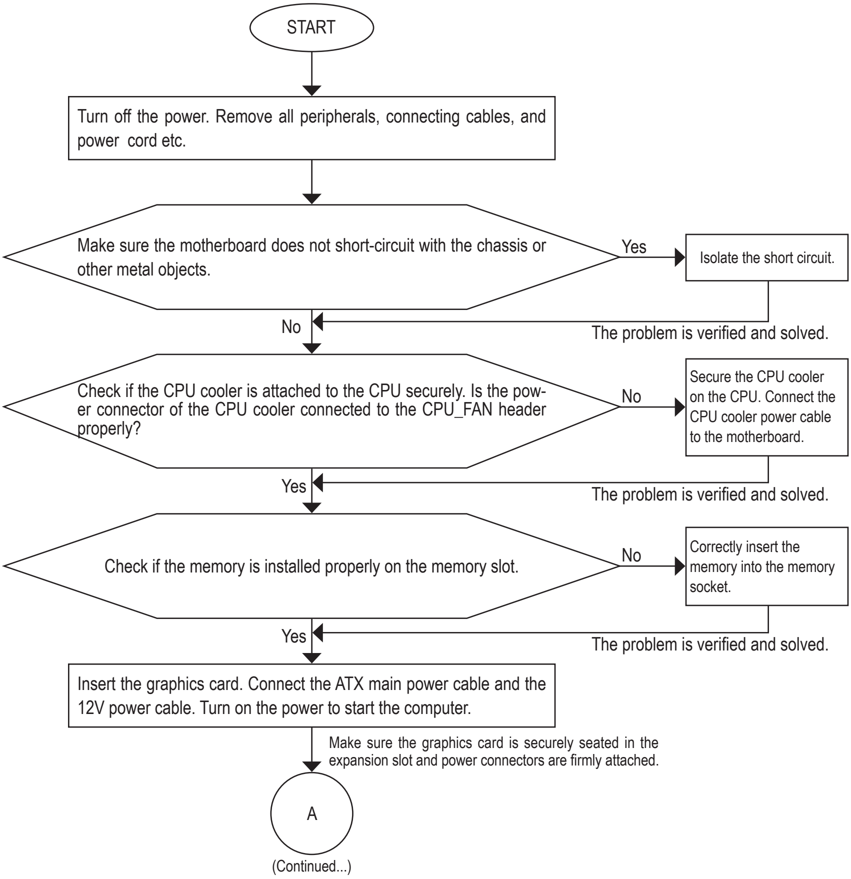
Q: What do the beeps emitted during the POST mean?

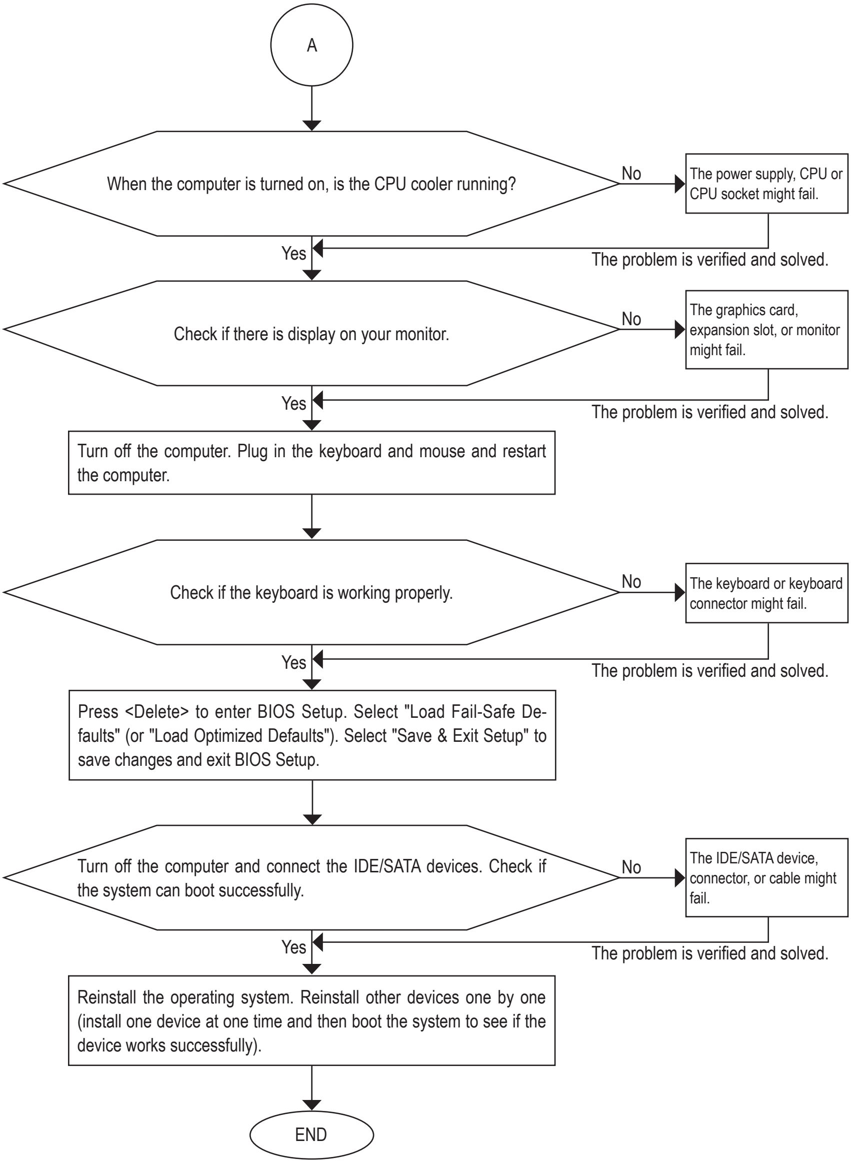
A: The following Award BIOS beep code descriptions may help you identify possible computer problems.
(For reference only.)

1 short: System boots successfully
2 short: CMOS setting error
1 long, 1 short: Memory or motherboard error
1 long, 2 short: Monitor or graphics card error
1 long, 3 short: Keyboard error
1 long, 9 short: BIOS ROM error
Continuous long beeps: Graphics card not inserted properly
Continuous short beeps: Power error

5-3-2 Troubleshooting Procedure

If you encounter any troubles during system startup, follow the troubleshooting procedure below to solve the problem.


START
Turn off the power. Remove all peripherals, connecting cables, and power cord etc.
Make sure the motherboard does not short-circuit with the chassis or other metal objects.
Yes
Isolate the short circuit.
No
The problem is verified and solved.
Check if the CPU cooler is attached to the CPU securely. Is the power connector of the CPU cooler connected to the CPU_FAN header properly?
No
Secure the CPU cooler on the CPU. Connect the CPU cooler power cable to the motherboard.
Yes
The problem is verified and solved.
Check if the memory is installed properly on the memory slot.
No
Correctly insert the memory into the memory socket.
Yes
The problem is verified and solved.
Insert the graphics card. Connect the ATX main power cable and the 12V power cable. Turn on the power to start the computer.
Make sure the graphics card is securely seated in the expansion slot and power connectors are firmly attached.
A
(Continued...)


A
When the computer is turned on, is the CPU cooler running?
No
The power supply, CPU or CPU socket might fail.
The problem is verified and solved.
Yes
Check if there is display on your monitor.
No
The graphics card, expansion slot, or monitor might fail.
The problem is verified and solved.
Yes
Turn off the computer. Plug in the keyboard and mouse and restart the computer.
Check if the keyboard is working properly.
No
The keyboard or keyboard connector might fail.
The problem is verified and solved.
Yes
Press <Delete> to enter BIOS Setup. Select "Load Fail-Safe Defaults" (or "Load Optimized Defaults"). Select "Save & Exit Setup" to save changes and exit BIOS Setup.
Turn off the computer and connect the IDE/SATA devices. Check if the system can boot successfully.
No
The IDE/SATA device, connector, or cable might fail.
The problem is verified and solved.
Yes
Reinstall the operating system. Reinstall other devices one by one (install one device at one time and then boot the system to see if the device works successfully).
END

If the procedure above is unable to solve your problem, contact the place of purchase or local dealer for help. Or go to the **Support&Downloads\Technical Service Zone** page to submit your question. Our customer service staff will reply you as soon as possible.

5-4 POST Error Code

POST (hex)	Description
CFh	Test CMOS R/W functionality
C0h	Early chipset initialization: -Disable shadow RAM - Program basic chipset registers
C1h	Detect memory - Auto-detection of DRAM size, type and ECC
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM
01h	Expand the Xgroup codes locating in physical address 1000:0
02h	DualBIOS init (optional)
03h	Initial Superio_Early_Init switch
05h	1. Blank out screen 2. Clear CMOS error flag
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips 2. Enable keyboard interface
0Ah	1. Disable PS/2 mouse interface (optional) 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional) 3. Reset keyboard Super I/O chips
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers
16h	Initial onboard clock generator if Early_Init_Onboard_Generator is defined. See also POST 26h
18h	Detect CPU information including brand, SMI type and CPU level
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR
1Dh	Initial EARLY_PM_INIT switch
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead

POST (hex)	Description
24h	Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information
25h	Early PCI initialization: - Enumerate PCI bus number - Assign memory & I/O resource - Search for a valid VGA device & VGA BIOS, and put it into C000:0
26h	1. If Early_Init_Onboard_Generator is not defined Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots 2. Init onboard PWM 3. Init onboard H/W monitor devices
27h	Initialize INT 09 buffer
29h	1. Program CPU internal MTRR for 0-640K memory address 2. Initialize the APIC for Pentium class CPU 3. Program early chipset according to CMOS setup Example: onboard IDE controller 4. Measure CPU speed
2Bh	Invoke video BIOS
2Dh	1. Initialize double-byte language font (optional) 2. Put information on screen display, including Award title, CPU type, CPU speed, full screen logo
33h	Reset keyboard if Early_Reset_KB is defined e.g. Winbond 977 series Super I/O chips. See also POST 63h
35h	Test DMA Channel 0
37h	Test DMA Channel 1
39h	Test DMA page registers
3Ch	Test 8254
3Eh	Test 8259 interrupt mask bits for channel 1
40h	Test 8259 interrupt mask bits for channel 2
43h	Test 8259 functionality
47h	Initialize EISA slot
49h	1. Calculate total memory by testing the last double word of each 64K page 2. Program write allocation
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range 3. Initialize the APIC for P6 class CPU 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical
50h	Initialize USB Keyboard & Mouse
52h	Test all memory (clear all extended memory to 0)
53h	Clear password according to H/W jumper (optional)
55h	Display number of processors (multi-processor platform)
57h	1. Display PnP logo 2. Early ISA PnP initialization - Assign CSN to every ISA PnP device

POST (hex)	**Description**
59h	Initialize the combined Trend Anti-Virus code
5Dh	1. Initialize Init_Onboard_Super_IO 2. Initialize Init_Onbaord_AUDIO
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility
63h	Reset keyboard is Early_Reset_KB is not defined
65h	Initialize PS/2 Mouse
67h	Prepare memory size information for function call: INT 15h ax=E820h
69h	Turn on L2 cache
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table
6Dh	1. Assign resources to all ISA PnP devices 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO"
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM...
77h	Detect serial ports & parallel ports
7Ah	Detect & install co-processor
7Ch	Init HDD write protect
7Fh	1. Switch back to text mode if full screen logo is supported - If errors occur, report errors & wait for keys - If no errors occur or F1 key is pressed to continue: 2. Clear EPA or customization logo
82h	1. Call chipset power management hook 2. Recover the text fond used by EPA logo (not for full screen logo) 3. If password is set, ask for password
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. Switch screen back to text mode
87h	NET PC: Build SYSID structure
89h	1. Assign IRQs to PCI devices 2. Set up ACPI table at top of the memory
8Bh	1. Invoke all ISA adapter ROMs 2. Invoke all PCI ROMs (except VGA)
8Dh	1. Enable/Disable Parity Check according to CMOS setup 2. APM initialization
8Fh	Clear noise of IRQs
93h	Read HDD boot sector information for Trend Anti-Virus code

POST (hex)	**Description**
94h	1. Enable L2 cache 2. Program daylight saving 3. Program boot up speed 4. Chipset final initialization 5. Power management final initialization 6. Clear screen & display summary table 7. Boot BIOS support (popup menu)
95h	Update keyboard LED & typematic rate
96h	1. Build MP table 2. Initialize power-saving (optional) 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table
FFh	Boot attempt (INT 19h)

5-5 Regulatory Statements

Regulatory Notices

This document must not be copied without our written permission, and the contents there of must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted. We believe that the information contained herein was accurate in all respects at the time of printing. GIGABYTE cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by GIGABYTE.

Our Commitment to Preserving the Environment

In addition to high-efficiency performance, all GIGABYTE motherboards fulfill European Union regulations for RoHS (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste Electrical and Electronic Equipment) environmental directives, as well as most major worldwide safety requirements. To prevent releases of harmful substances into the environment and to maximize the use of our natural resources, GIGABYTE provides the following information on how you can responsibly recycle or reuse most of the materials in your "end of life" product.

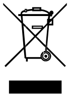
Restriction of Hazardous Substances (RoHS) Directive Statement

GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

Waste Electrical & Electronic Equipment (WEEE) Directive Statement

GIGABYTE will fulfill the national laws as interpreted from the 2002/96/EC WEEE (Waste Electrical and Electronic Equipment) directive. The WEEE Directive specifies the treatment, collection, recycling and disposal of electric and electronic devices and their components. Under the Directive, used equipment must be marked, collected separately, and disposed of properly.

WEEE Symbol Statement



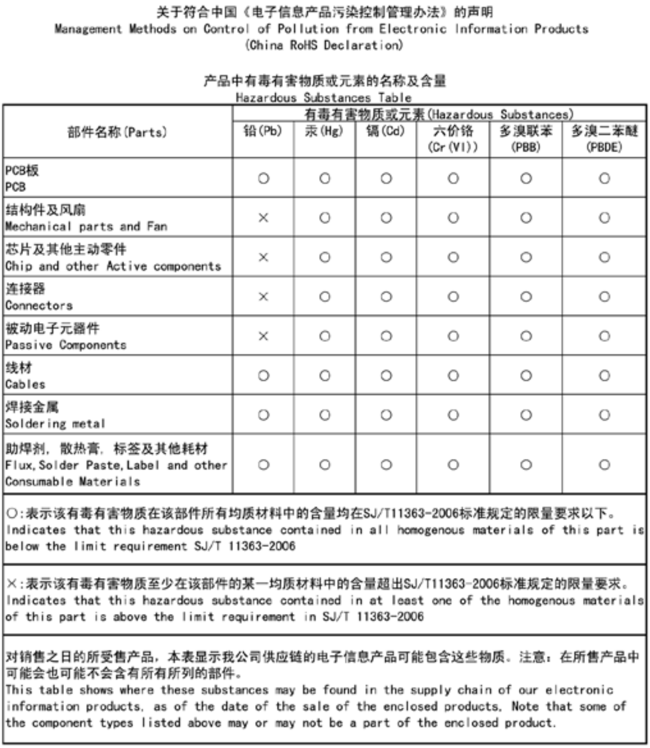
The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.

China Restriction of Hazardous Substances Table

The following table is supplied in compliance with China's Restriction of Hazardous Substances (China RoHS) requirements:



关于符合中国《电子信息产品污染控制管理办法》的声明
Management Methods on Control of Pollution from Electronic Information Products
(China RoHS Declaration)

产品中有毒有害物质或元素的名称及含量
Hazardous Substances Table

部件名称(Parts)	有毒有害物质或元素(Hazardous Substances)					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
PCB板 PCB	○	○	○	○	○	○
结构件及风扇 Mechanical parts and Fan	×	○	○	○	○	○
芯片及其他主动零件 Chip and other Active components	×	○	○	○	○	○
连接器 Connectors	×	○	○	○	○	○
被动电子元器件 Passive Components	×	○	○	○	○	○
线材 Cables	○	○	○	○	○	○
焊接金属 Soldering metal	○	○	○	○	○	○
助焊剂，散热膏，标签及其他耗材 Flux, Solder Paste, Label and other Consumable Materials	○	○	○	○	○	○

○:表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。
Indicates that this hazardous substance contained in all homogenous materials of this part is below the limit requirement SJ/T 11363-2006

×:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。
Indicates that this hazardous substance contained in at least one of the homogenous materials of this part is above the limit requirement in SJ/T 11363-2006

对销售之日的所受售产品，本表显示我公司供应链的电子信息产品可能包含这些物质。注意：在所售产品中可能会也可能不会含有所有所列的部件。
This table shows where these substances may be found in the supply chain of our electronic information products, as of the date of the sale of the enclosed products. Note that some of the component types listed above may or may not be a part of the enclosed product.

Contact Us

- **GIGA-BYTE TECHNOLOGY CO., LTD.**

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- **G.B.T. INC. - U.S.A.**

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- **Gigabyte Technology Pty. Ltd. - Australia**

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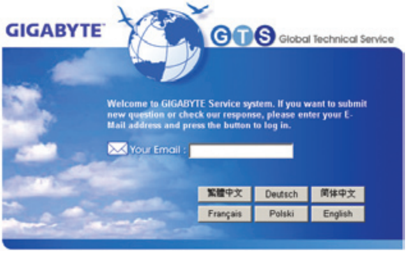
- **Kazakhstan**

WEB address : http://www.gigabyte.kz

You may go to the GIGABYTE website, select your language in the language list on the top right corner of the website.

• GIGABYTE Global Service System



Welcome to GIGABYTE Service system. If you want to submit new question or check our response, please enter your E-Mail address and press the button to log in.

To submit a technical or non-technical (Sales/Marketing) question, please link to:
http://ggts.gigabyte.com.tw
Then select your language to enter the system.